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Everyday Practice—Some Aspects*

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The preparation of this short paper was undertaken, in part in appreciation of the honour bestowed upon me by the invitation to present one to you, and also because it afforded me an opportunity of putting my views before the members of this Division, so that collectively we may be able to contribute something of value to our common knowledge. Moreover, it gives me an additional opportunity, which I value highly, that of cementing old friendships and, I hope, forming new ones.

There appeared in a recent issue of the *Veterinary Record*[1] an excellent editorial on "The Horse," prompted by an equally interesting address by Mr. E. Brayley Reynolds on "Present-day Horse Practice." I feel, however, I must join issue with the writer of the former when he says that "no major discovery which has markedly modified treatment . . . has been made in Great Britain." Surely he has read of the revolutionary treatment—biochemical therapy—by the use of common salt; but it may be that he has had no opportunity of finding out the remarkable superiority of this agent—the most important element for the continuance of life—over all others. The results are amazing.

I know quite well that "Lang with his tube and his salt" is looked upon by many as a crank; on the other hand, I am assured on good authority that I can have no conception of the extent of my following. I am quite unrepentant and would remind my critics that I carried on as taught for 18 years before I "discovered," entirely by accident, the extraordinary therapeutic value of common salt. I do not claim to be original in what I believe to be the true sense of the word, but I have been blessed with keen powers of observation and all I have learned has been gradually acquired throughout the 20 intervening years. As has been well said, progress is not really the work of the individual but that of the body corporate to which he belongs, by virtue of the training he receives, his environment, and the inspiration and example of his fellows.

No one has been more sceptical than I—and I still am—and I can assure you that in the course of my investigations I have found more culs-de-sac than thoroughfares. The more I see and the more I realise how puny are our efforts compared with Nature's own powers of healing, the more humble I become.

Colics and Strongylosis

Our late friend and colleague, Mr. Noel Pillers, handed on a flaming torch when he gave us his extremely valuable paper on "Some Observations on Colic in Adult Cart-horses due to the Larvae of *Strongylus vulgaris*."[2]

During the two-and-a-half years which have passed since, it has been borne in on me more and more that Pillers' view is right. It is rarely in my own mind that I can dissociate colics from parasitism because I often find loss of condition which, according to the attendant, has been slowly progressive for four to six weeks.

For years—16 in December last, to be correct—I have been treating all my colics with large doses of common salt per stomach tube with great success; the treatment was quite empirical I admit, but Pillers brought new light to bear and I now find that, in addition to other results, the thrombus caused by the larvae of *Strongylus vulgaris* is to a considerable extent dissolved; even more efficient is the intravenous injection of two pints of water containing two ounces each of common salt and sodium citrate. This winter's work has confirmed all I previously claimed for it in the preceding season.[3]

Debility is commonly associated with colic in my district and it is gratifying to see the marked and lasting improvement which invariably follows successful colic treatment as carried out by me.

I often think that were I the owner of valuable thoroughbreds I should never allow them to graze owing to the serious risks of parasitism; rather, I should keep them in roomy spaces free from grass with an exercising track and mow the green food from a field which had not been grazed, nor had a dressing of stable manure, for at least a year previously. I have on several occasions seen young thoroughbreds in small paddocks—to my mind a dangerous practice, for they cannot get away from their own parasites.

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By the above it might be possible to get parasite-free grass lands, but constant vigilance would be necessary to prevent re-infestation.

Hyposodaemia[4]

Reference to the improved condition following salt administration in solution by stomach tube brings us to this subject, ably summarised and discussed by Mr. F. T. Harvey. In his article he tells us that sodium is an extra-cellular element and rapidly excreted, necessitating constant supplies of this salt. It is nevertheless interesting to note that one large dose of salt has remarkable and lasting benefits.

In view of Harvey's article I have given my own hunter half an ounce of sodium bicarbonate in each feed during the whole of this season. He is very fit indeed and has not had periods of fickle appetite and pultaceous faeces as had frequently been the case in former seasons.

This treatment is common amongst horse dealers for the prevention of haemoglobinuria, and they claim good results.

Impaction of the Terminal Portion of the Ileum[5]

I am not bringing "coals to Newcastle," for I have nothing to add to the clinical picture portrayed by Mr. Hudson. I have had ten cases of which six recovered. In all the four fatal cases small calcified areas have been found in the mesentery and bowel wall and so, with a view to finding out the cause of the above condition, I forwarded an excellent specimen to the pathologists at Camden Town, intact—the constricted portion of the bowel with the resultant impaction about a foot long and the calcified areas well shown. Mr. E. G. White[6] reported that it was impossible to state what the calcified areas originally were—whether they were within blood vessels or not could not be ascertained—and that no pathological condition of the muscles of the bowel could be found to account for the constriction due to spasm. The explanation is still "wropt in mystery."

No recurrence has taken place in any of the six recovered animals, with the exception of one which recurred a week later but has remained well ever since—May, 1936. Apparently the constriction does not persist long after recovery.

I have had three fatal cases of omental hernia with strangulation of the bowel, symptomatically identical with impacted ileum. Only on *post-mortem* was differentiation definite.

Choking in the Horse

All my recent cases have been due to sugar-beet pulp. One of my clients took a bucketful of pulp and found it to absorb sufficient water to fill seven buckets; it can be readily understood, therefore, why the oesophagus becomes so tightly packed.

Thanks to two writers in the *Veterinary Record*—Messrs. J. C. Coleman and W. A. Campbell—a method of relieving the condition by the use of the stomach tube has been described. I found it necessary, however, to modify the technique slightly. If my memory serves me rightly, it was stated that the beet pulp was washed out, the head being kept as low as possible. I now push the tube into the mass and pump two or three times only to stir it up, take off the pump quickly, and withdraw the tube a few inches to facilitate rapid and complete syphonage. I endeavour to avoid putting in sufficient fluid to cause it to be returned into the pharynx, on account of the danger of inhalation, particularly in refractory patients. The process is repeated as often as is necessary.

Following the removal of the offending material I administered internally one pound of common salt and one ounce of formalin dissolved in four gallons of water, as I find this mixture to be absolutely specific in preventing septic pneumonia following choking with drugs such as linseed oil, etc. Particles of beet pulp in the trachea and bronchi may, however, present a different problem.

As long ago as 1920 I found the salt and formalin treatment to be remarkably efficacious in horses choked during drenching and I wrote an article which was published in the *Veterinary Journal* (1921): as no one has ever mentioned it, however, I often wonder whether it was overlooked. I may remind you that years ago Mr. Imrie used formalin intravenously in his pneumonia cases, and claimed success.

We all know the medicine choking case: patient very distressed, rapid respirations, churning sounds in the trachea, disinclination to move, anxious expression and a temperature up to 105° F. *Provided the treatment is adopted on the day of the accident it is* 100 *per cent. effective* and it is delightful to find the patient perfectly normal the day following. It follows, then, that septic pneumonia is rarely seen now in my practice.

Choking in the Cow

This is usually due to a potato or root, but what a respect I have now for the probang! So much so, that I hate the thing, for reasons which you can all guess. If the obstruction is in the upper third of the neck I attempt by manipulation to return it to the pharynx, when one crunch settles the matter; or, if necessary, I apply the revelation gag and try to remove it with my fingers.

Failing the above I puncture the rumen with a trocar and cannula, tying the latter in position in order to prevent tympany, and, in most instances, it is surprising to find the next day that the obstruction—even when this is due to sugar beet—has passed on. I had one case

in which the obstruction was so firmly held by spasm of the oesophagus that it would have been madness to have attempted force with the probang; by next morning it had gone.

Years ago—I regret that I forget the name of the writer—someone suggested putting glycerine of belladonna into the oesophagus to overcome the spasm: I have tried it and found it good. I have been told that Mr. John Brown, Invergordon, will not use a probang, contenting himself with the trocar and cannula. The more cases I see, the more I admire his wisdom.

Retained Placenta in the Mare

I have already dealt with this condition, instancing 21 consecutive cases with perfect recovery and no parturient laminitis. The next case, however, was one which foaled on a Saturday and apparently passed the afterbirth all right; on Sunday she passed a bit more, on Monday she was "rooted to the ground."

I do not remember whether there was any further placenta—my assistant treated the case—but the treatment now adopted, hot salt solution (½ lb. to 4 galls.) irrigation and salt solution internally per tube afterwards, was carried out and in two days the patient was trotting sound round the field.

Retained Placenta in the Cow

For years now I have administered a dose of salt immediately on completion of parturition in those cases to which I have been called, with the result that in a few hours the afterbirth is voided by the patient, and there is no further trouble. With the exception of abortion cases I can recall one only in which the treatment failed.

As we all know, retained placenta is very common after the birth of twins, due, no doubt, to uterine inertia. In two recent cases where our services were necessary late at night the reports next morning were that all was well.

I have not removed the placenta in the cow for years—my clients are quite well trained now. I used to be worried when undertaking this to find my patient's condition very much worse the day following, with a rise in temperature and loss of appetite. Mr. Imrie's[7] explanation is that forcible removal of the placenta entails the formation of raw surfaces which rapidly absorb septic material or rather fluids. I simply administer salt solution internally—a large dose every two or three days—until the placenta comes away. One can get the temperature down two to three degrees and a much improved appetite with the placenta still *in situ*, while the placenta is to a certain extent preserved and comes away whole. I find, however, that endometritis follows and this again is successfully treated by irrigation with hot salt solution, even up to 10 per cent. in old-standing cases—I do not use Lugol's solution now.

Lymphangitis in the Horse

I cannot add anything to the pathology of this condition, but it, too, is treated daily by salt solution internally. In addition to its other actions, this has an anodyne effect. No hot fomentations are ever used, but what I consider most important is that no permanent thickening of the leg has ever occurred as a sequel—and this is the experience of years.

In conclusion, I know that much of what I have said is mere repetition of what I have written, but as many of the conditions referred to have now lost their terrors for me I feel quite justified and trust that a good discussion on "Every-day Practice" will ensue.

References

[1]*Vet. Rec.* 49. 8. (Feb. 20th, 1937.)
[2]Pillers, A. W. N. "Some Observations on Colic in Adult Cart-horses due to the Larvae of *Strongylus vulgaris*." (1934.) *Vet. Rec.* 46. 47.
[3]Lang, W. W. "Common Salt and Some Other Agents—Their Uses in Certain Conditions." (1936.) *Vet. Rec.* 48. 29.
[4]Harvey, F. T. "Hyposodaemia." (1936.) *Vet. Rec.* 48. 38.
[5]Hudson, R. (1936.) *Vet. J.* 92. 2. p. 50.
[6]Personal communication.
[7]Personal communication.

MILK RECORDING PROGRESS IN SCOTLAND

Further gratifying improvement in the number of cows being milk recorded was reported at the annual meeting of the Scottish Milk Records Association. During 1936 the number of herds officially tested was 800, and the number of cows 36,221—an increase of 30 herds and 1,349 cows from the previous year, and the largest number in the history of the Association. All the local societies of 1936 are continuing and it has been found necessary to form a sixth circuit in Central Scotland owing to increased membership, while the Rhins of Galloway Society has also decided to form a new circuit. The number of herds and cows tested during the current year will also show increases, stated the report. The number of new members for official records for season 1937 obtained to date is 66, with a considerable number of prospective new members also obtained. Seven new members have been enrolled for unofficial records, and six transferred to the official records brings the total number transferred up to 63. Altogether no fewer than 419 herd owners have been initiated in milk recording through the operation of the Association, and that in itself says a great deal for the system. Notwithstanding the inclusion each year of a number of new herds, the proportion of good milking or Class I cows, it is satisfactory to note, continues to increase. By the new classification standard the percentage of Class I cows last year was 64¼ compared with 61 in 1935, while Class III, or unprofitable animals were only 3 per cent. as against 3½ per cent. in 1935. These figures indicate a large increase per cow. The accounts show a balance in hand of £374, and the Treasury have approved of a grant not exceeding £2,663 in aid of the work of the Association for 1937-38, this being an increase of £44 on that sanctioned for 1936-37.—*North British Agriculturist.*

The Nutritive Value of Raw and Pasteurized Milk for Calves*

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The value of pasteurization in destroying pathogenic bacteria in milk and so safeguarding the health of the human population is beyond question. While admitting this, certain workers have hesitated to give their unreserved support to pasteurization on the ground that it may have some deleterious action on the nutritive value of the milk which will more than counteract the beneficial effect resulting from the destruction of harmful micro-organisms.

A number of papers have been published in recent years describing attempts that have been made—chiefly on rats and children—to determine whether in fact pasteurized milk is in any way inferior in its nutritive qualities to raw milk. The literature on this subject has been reviewed by Stirling and Blackwood (1933) and M'Candlish and Black (1935). Many of the results are ambiguous, and none of them, in our view, definitely answers the main question at issue. The fact that in several experiments no statistically significant difference was found between the two classes of milk is not sufficient to give us the assurance we need, for the numbers of animals or children under observation were sometimes so small as to allow a possible real difference to be obscured by the inevitable accompanying error of sampling. Moreover, the interpretation of the results is rendered difficult by the circumstances that in all these experiments the subjects under test were being fed with milk from a heterologous animal source.

It seemed to us that if a clear answer was to be obtained to our main question it was desirable to make a direct comparison of the two types of milk on the homologous animal species, namely the calf. Comparatively few experiments on this animal are on record, and those that have been described have suffered (1) from being carried out on too small a number of animals to enable a satisfactory result to be obtained, and (2) from being complicated by the occurrence of disease in the experimental animals which may have entirely falsified the outcome of the investigation.

In planning an experiment to be carried out on calves, we determined as far as possible to avoid the sources of these errors. Since for financial and other reasons an experiment on really large numbers of animals presented formidable difficulties, it seemed of special importance to make our observations on absolutely healthy animals so that the results might not be influenced in any way by the occurrence of latent or overt disease.

Description of Experiment

With the kind consent of the Committee of the Berks and Bucks Joint Sanatorium, permission was obtained to carry out an experiment on the herd attached to the Sanatorium. The general plan of the experiment, which lasted from July, 1934, to September, 1936, was to feed alternate calves, as they were born, on raw or pasteurized milk for eight weeks, and to compare their rate of growth. The relevant details may best be considered under separate headings. It may be pointed out at this stage that the management of the herd and the day-to-day control of the experiment was under the personal control of one of the authors (H. F. C.).

The Peppard Herd

This contains about 20 Shorthorn cows which calve down regularly throughout the year so as to maintain a more or less constant supply of milk for the Sanatorium. Except for two pedigree bulls, which have been bought in, the herd has been self-contained since 1932. The animals are kept out at pasture during both summer and winter, and are never stalled except for the actual purpose of milking, which is done by hand morning and evening. Calving takes place in the open field. Bull calves are sold at about one week old ; heifer calves are mostly kept for replacements.

Since March, 1925, the herd has been tested at six-monthly intervals with tuberculin ; all positively reacting animals have been sold off. The last occasion on which positive reactors were found was in June, 1932, when two animals had to be removed from the herd. During the whole course of the feeding experiment the herd remained completely free from tuberculosis. Moreover, at a herd test carried out a month after the conclusion of the experiment, all animals passed satisfactorily.

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With regard to contagious abortion, the history of the herd has been peculiarly satisfactory. Two cows aborted in January, 1928, and were found to give a positive blood agglutination reaction to *Brucella abortus*. The herd was vaccinated the same month with a living vaccine, since when there has not been a single case of abortion. At a herd test carried out some time before the commencement of this experiment, no animals showed the presence of specific agglutinins in the blood.

Johne's disease has seldom occurred ; the last animal to be affected with it was in September, 1929.

The herd has always been relatively free from udder troubles. In October, 1936, at the conclusion of the feeding experiment, the milk of each cow was examined culturally by plating in ox-blood agar, with the result that of the 18 animals present, three were found to be affected with streptococcal mastitis in a subclinical form.

Pasteurizer

To ensure a supply of adequately pasteurized milk, it was decided to pasteurize the milk on the premises. A small batch pasteurizer, of 2 gallons working capacity, fitted for low-pressure steam heating, was specially manufactured for us by Messrs. Brown and Son, Ltd., London, N.19. It was made of copper, coated with pure tin, and consisted of an outer steam-heated jacket and an inner vessel, to hold the milk, which could be lifted out for cleaning and sterilizing purposes. It was provided with an overhead motor-driven agitator and an auto-thermostatic control. In practice, the milk was heated up till the indicator thermometer, which dipped into the milk itself, registered 145° F. (62.8° C.). The temperature was maintained at this level for 30 minutes, after which the steam was turned off. The milk was then cooled, either to 90° F. (32.2° C.) if it was to be fed immediately to the calves, or to the temperature of the tap water if it was to be kept for some hours.

The Milk

The mixed milk of the herd from the morning's milking alone was used. The required quantity was divided into two parts. One part was pasteurized at once at 145° F. (62·8° C.) for 30 minutes ; the other half was left raw. Part of the raw and part of the pasteurized milk were fed at a temperature of about 90° F. (32·2° C.) to the calves in the morning. The remainder of the raw and pasteurized milk was water-cooled and kept in covered pails in a cool dairy till the evening, when it was warmed to about 90° F. and fed to the calves.

Though this was the routine practice throughout the greater part of the experiment, a misunderstanding occurred at the commencement which was responsible for some trouble during the first six months. Instead of the milk, immediately after pasteurization, being divided into two parts, one part being cooled to 90° F. and fed to the calves in the morning, the other part being cooled to tap-water temperature and kept for the evening feed, the whole of the pasteurized milk was cooled only to 90° F., and the part for the evening feed was left to cool down slowly in the dairy. As a result considerable bacterial multiplication occurred in the pasteurized milk destined for the evening feed, and this appears to have been responsible for a certain amount of scouring in the calves. As soon as the trouble was traced to its source, the practice of leaving the pasteurized milk to cool slowly in the dairy was stopped and the routine described above was enforced. No further difficulty was experienced from scouring, except in a mild form in occasional calves. It may be noted that the milk was always produced under cleanly conditions and was of approximately the same standard as Certified milk.

Selection of the Calves

In order to avoid any unconscious bias in the selection of the calves for the different groups, it was decided to allot alternate calves, as they were born, to the raw and pasteurized groups respectively* ; no selection whatsoever was made. Though this would have been an ideal method for a large experiment, it proved a little unsatisfactory in the present instance. In the first place, it resulted in a very uneven distribution of the sexes, there being far fewer bull calves allocated to the pasteurized than to the raw group. In the second place, it so happened that two calves, both of which at birth were quite unfit to be included in the experiment, had to be allocated to the pasteurized group. One calf, P_1, was born of a mother which had to be slaughtered a week after parturition on account of "actinomycosis" of the larynx. Not only was this calf an undersized weakling at birth, but it further received a mauling by a horse when it was one day old from which it never recovered. The other, P_{20}, had a very difficult delivery ; it was unable to stand and had to be held up for feeding. The first of these animals died in three weeks, the second in a fortnight. In neither instance could death be in any way attributed to the type of diet that was being given.

These deaths, it may be noted, were the only deaths among calves that occurred throughout the course of the experiment. During the previous 15 years there had been altogether ten deaths among a total of 250 calves born. A loss of two calves during the experimental

*For the sake of convenience we ask pardon for the adjectival use, without inverted commas, of the terms raw and pasteurized in relation to the animals fed.

period of 27 months might, therefore, have been expected on the basis of the mortality rate previously experienced in the herd.

In each group there were four animals which were first calves.

Housing of the Calves

As soon as they were removed from their mothers, the calves were housed in a wooden shed, opening on one side into a yard, about 52 by 36 feet in area. The shed was divided into three compartments, so that the calves could be grouped more or less according to their ages. The animals in the raw and pasteurized groups were run together. Straw was used for bedding.

The Diet

Every calf had its mother's colostrum for the first three-and-a-half days, and was then hand-fed for eight weeks. At the beginning of the experiment the calves were given 1 lb. of milk daily per 10 lb. of body weight. This amount, though more or less adequate for the first few weeks of life, was found to be insufficient for the calves as they grew older. The amount was therefore increased, though not to a sufficient extent, as it subsequently proved, to allow of optimal development. The following summarises the diet received by the different animals :—

(*a*) Raw calves 1 to 5, and pasteurized calves 2 to 6 were given daily 16 oz. of milk per 10 lb. of body weight for eight weeks.

(*b*) Raw calf 6 and pasteurized calf 7 were given daily 20 oz. of milk per 10 lb.of body weight for eight weeks.

(*c*) Raw calves 7 to 25 and pasteurized calves 8 to 25 (with the exception of P_{20}) were given daily 16 oz. of milk per 10 lb. of body weight for the first four weeks, and 20 oz. of milk for the second four weeks.

The milk was fed at a temperature of about 90° F. morning and evening. During the first year of the experiment each calf was given a special feeder, from which it sucked its allotted quantity of milk through a teat. These feeders, however, proved rather troublesome, and later they were replaced by hand-feeding from a bucket.

Besides milk, the calves were provided with hay *ad lib.* Observations showed that during the first month of life they merely "played" with it, but after that each animal consumed about 1 lb. a day, rising to 3 lb. by the eighth week.

After they had completed their experimental period of observation of eight weeks, the calves that it was decided to keep in the herd were removed from the experimental shed and were given flaked maize, bran, and roots or molassed suger-beet pulp, together with a little milk for the next few weeks.

Recording Progress

Each animal was weighed when it entered the experiment on the fourth day of life, and thereafter at weekly intervals. Careful observations were made on general condition, and a special watch kept for the development of rickets. From time to time outside observers, such as the milk recorder of the county and local farmers, were brought in to inspect the animals and make an attempt to distinguish those in the raw from those in the pasteurized group.

Results

The detailed results are set out in Tables I and II. (*See pages* 821 *and* 822.)

It will be noted that the average weight of animals in the raw group was 2·23 lb. greater than that of the pasteurized group at the commencement of the experiment; this was mainly the result of the smaller proportion of bull calves in the pasteurized group. At the end of the experiment the average difference in weight between the two groups was 2·09 lb. The average increase in the animals of the raw group was 53·72 lb., and in those of the pasteurized group 53·86 lb. In other words, so far as the average weight gained throughout the whole course of the experiment was concerned, the two groups behaved for all practical purposes identically (Fig. 1).

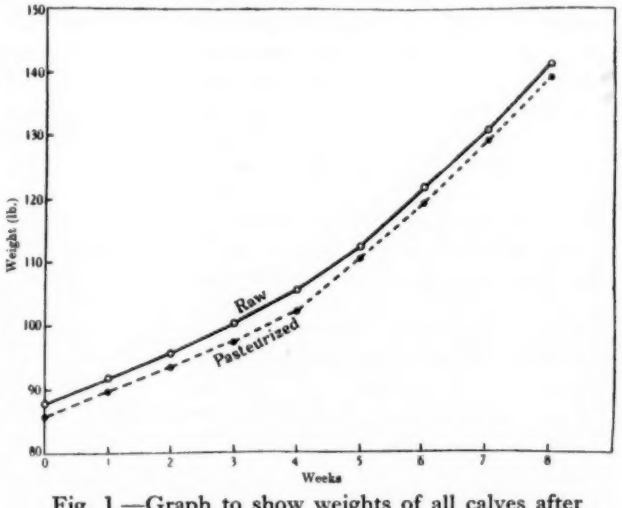

Fig. 1.—Graph to show weights of all calves after 1 to 8 weeks.

This was all the more remarkable considering the difference in the sex distribution of the animals in the two groups. Male animals usually grow more rapidly than female. This is well shown in the raw group, in which the bull calves put on an average of 6½ lb. more weight than the heifer calves. In the pasteurized group there were approximately twice as many female as male animals and the average increase in weight of both sexes taken together might well have been expected, independent of the nature of the diet, to have been less than that in the raw

Table I.

Raw Milk Group.

No.	Sex.	Weight in lb. at commencement.	Weight in lb. after 8 weeks.	Increase in weight in lb.	Age in months when sold.	Price obtained. £ s.	Remarks.
4	Bull	92	145	53	2	2 15	
5	„	89	144	55	2	2 10	
8	„	98	161	63	2	2 15	
10	„	89	141	52	2	2 10	
11	„	80	140	60	2	2 10	
13	„	93	164	71	2	3 0	
14	„	90	149	59	2	2 10	
16	„	70	120	50	2	2 0	
18	„	80	126	46	2	2 10	
19	„	92	150	58	2	2 10	
21	„	106	161	55	2	2 10	Suckled mother for 7 days.
22	„	80	141	61	2	2 10	Slight scouring, 5th week.
24	„	115	171	56	2	3 0	
1	Heifer	90	145	55	—	—	
2	„	76	122	46	2	2 4	
3	„	79	127	48	19	9 10	
6	„	75	110	35	15	9 10	
7	„	98	152	54	—	—	
9	„	90	140	50	12	9 10	
12	„	80	131	51	9	6 10	
15	„	90	140	50	—	—	Suckled mother for 10 days.
17	„	79	125	46	—	—	Slight scouring 2nd and 3rd weeks.
20	„	90	140	50	2	2 10	
23	„	86	145	59	—	—	
25	„	88	148	60	—	—	
Total 25 : 13 bull, 12 heifer.							
A.M.	Bull	90·31	147·15	56·85			
S.D.	„	11·29	9·59	10·64			
A.M.	Heifer	85·08	135·42	50·33			
S.D.	„	6·85	11·88	6·37			
A.M.	Both sexes	87·80	141·52	53·72			
S.D.	„	9·78	14·03	7·01			

A.M. = arithmetic mean ; S.D. = standard deviation.
Note.—All animals that were not sold were added to the Sanatorium herd.

group in which the sexes were more evenly distributed.

The fact that no such difference occurred suggests that pasteurized milk is at least equal in value to raw milk in promoting the growth of young calves.

It is interesting to note that the highest individual gain—80 lb.—in a bull calf and the highest individual gain—63 lb.—in a heifer calf both occurred in animals fed on pasteurized milk (P_7 and P_{21}).

It will be observed that in the pasteurized group the average increase in weight of the male animals, instead of being greater than that of the female, was slightly less. This circumstance was due mainly to the occurrence of scouring in the bull calves P_2 and P_5 which retarded their growth during the first three weeks and consequently led to a depression in the average weight of the male animals. In this connection, attention has already been drawn, when describing the milk, to the trouble that was experienced from scouring during the early stages of the experiment. This appeared to be due, in some measure at least, to inadequate cooling of the milk after pasteurization leading to gross multiplication of the organisms in the milk destined for the evening feed. It seems probable that this alone was sufficient to give rise to gastro-intestinal disturbance in animals receiving the pasteurized milk. It is true that in both the raw and the pasteurized groups slight scouring occurred in occasional animals at a later date, but never with the serious results observed in calves P_2 and P_5.

Table III (*overleaf*) shows the average weekly increase in weight of the two groups.

As is to be expected with relatively small numbers of animals, the differences are subject to a certain amount of variation. On the whole, the main increase in weight tended to be slightly higher in the raw than in the pasteurized group during the first month. This was probably due in the main to the depression of the average by one or two animals in the pasteurized group which, as already noted, suffered from scouring during the first two or three weeks of life. In spite of this, the average total increase for the whole experiment was slightly higher for the pasteurized than for the raw animals, the

Table II.

Pasteurized Milk Group.

No.	Sex.	Weight in lb. at commencement.	Weight in lb. after 8 weeks.	Increase in weight in lb.	Age in months when sold.	Price obtained. £ s.	Remarks.
2	Bull	77	106	29	2	1 2	Scouring for first 3 weeks.
3	,,	90	140	50	2	1 15	
5	,,	90	138	48	2	2 10	Scouring for first 2 weeks.
7	,,	98	178	80	2	2 15	
11	,,	95	160	65	2	2 10	
17	,,	84	127	43	—	—	Registered for breeding purposes.
19	,,	73	128	55	2	2 0	
22	,,	98	154	56	2	2 10	
4	Heifer	94	148	54	—	—	
6	,,	86	132	46	—	—	
8	,,	74	126	52	13	9 10	
9	,,	84	135	51	—	—	
10	,,	80	132	52	—	—	
12	,,	97	150	53	—	—	Slight scouring during 3rd week.
13	,,	90	138	48	—	—	
14	,,	70	118	48	7	3 10	
15	,,	82	141	59	—	—	
16	,,	79	135	56	6	4 10	
18	,,	83	141	58	—	—	Slight scouring during 2nd week.
21	,,	88	151	63	—	—	
23	,,	97	158	61	—	—	Slight scouring during 2nd week.
24	,,	87	150	63	—	—	
25	,,	72	121	49	—	—	
Total 23 : 8 bull, 15 heifer.							
A.M.	Bull	88·13	141·39	53·26			
S.D.	,,	8·79	20·09	14·12			
A.M.	Heifer	84·20	138·40	54·20			
S.D.	,,	8·12	11·24	5·38			
A.M.	Both sexes	85·57	139·43	53·86			
S.D.	,,	8·57	15·42	9·43			

A.M. = arithmetic mean ; S.D. = standard deviation.

Note 1.—Calves P_1 and P_{20} which, for causes already stated in the text, died during the first 3 weeks of life, have been omitted from this table.

Note 2.—All animals that were not sold were added to the Sanatorium herd.

percentage figures being 62·94 and 61·18 respectively.

Compared with calves fed on a normal diet, the gains in weight were undoubtedly low. The amount of milk given, while permitting good skeletal development, was insufficient to fatten the animals. Their weight and their market value at the end of eight weeks was, therefore, inferior to those of calves receiving a more generous diet. As soon as their period of experimental observation was over, and the animals that were not to be sold at once were put on to a liberal mixed diet, their weight increased rapidly and within about two to three months equalled that of normally fed animals.

Throughout the experiment the general condition of the calves was good. Though lean, they appeared perfectly healthy, and showed no sign of rickets or of symptoms referable to anaemia such as have been noted by several workers who have fed calves on an exclusive diet of raw milk (see Cannon, 1931 ; Knoop *et al.* 1935). The slight scouring that occurred in occasional animals after the faulty cooling of the pasteurized milk had been put right, and which was seen in both raw and pasteurized groups, may well have been due to the system of pail feeding, since it is known that this is liable to give rise to digestive disturbances (Sheehy, 1934). At no time during the course of the experiment was any lay or professional observer able to distinguish between the two groups of animals.

Table III.

Average Weekly increase in Weights of the Animals in the Raw and Pasteurized Groups.

	Increase in weight in lb.	
Week.	Raw.	Pasteurized.
1	3·88	3·73
2	4·16	3·92
3	4·40	4·08
4	5·32	5·18
5	7·32	8·17
6	9·16	8·83
7	9·12	9·82
8	10·36	10·13
Total	53·72	53·86

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Towards the close of the experiment heifer R_1, which was two years old, was served twice at an interval of three weeks, and heifer P_4, which was 22 months old, was served once. Both animals are now "in calf."

DISCUSSION

The results, which have been set out in detail, without any reservations, need little discussion. They speak for themselves. That slight variations should occur in the behaviour of different animals in the two groups was inevitable, but there is nothing whatever to suggest that they are attributable to the difference in the nature of the milk received, or that the differences as a whole are significant. In some respects the results are surprising. Each one of us at the commencement of the experiment was not only prepared to find a difference but actually expected to find a difference, in favour of the animals in the raw group. Moreover, the farm hands who looked after the animals were strongly prejudiced against the use of pasteurized milk for the feeding of the calves. This prejudice, which affected all of us, in favour of raw milk for calf feeding, was based, of course, on pure *a priori* reasoning without any experimental justification. The outcome of the present experiment seems to leave little doubt that, judged by all the criteria we have used, milk produced in a clean manner from healthy animals and submitted to low-temperature pasteurization followed by adequate cooling is equal in nutritive value to milk from the same source consumed in the raw condition. It may be noted that Blackwood *et al.* (1936), who made a careful study of the assimilation and retention of nitrogen, phosphorus and calcium by calves, were likewise unable to detect any significant difference between raw and low-temperature pasteurized whole milk.

Reference should perhaps be made to the work of M'Candlish and Black (1935), which has frequently been quoted as showing that raw milk is of higher nutritive value for calves than pasteurized. Such an interpretation seems to us to be unjustified. It is true that in certain small groups the animals fed on raw milk increased in weight more rapidly than those on pasteurized, but in an other groups the reverse was the case. If an analysis is made of the figures relating to all the animals, it is found that the weighted mean increase was actually greater in the pasteurized than in the raw group, the percentages being 311·3 and 308·4 respectively.

It is not proposed to enter here into the possible application of this knowledge to practical farming conditions. Suffice it to point out that adequate pasteurization of milk should prove of considerable value in the rearing of healthy calves in diseased herds. Some success has already been reported from California in the eradication of tuberculosis from dairy herds by this method (see Roadhouse and Perry, 1930). In deciding whether or not to adopt pasteurization, farmers need no longer be deterred by the fear that calves brought up on pasteurized milk will develop less satisfactorily than those brought up on raw, because of any hypothetical nutritive inferiority of the pasteurized product.

Summary and Conclusions

1. An experiment on the feeding of calves is described, which lasted over two years, and which was carried out on a healthy Shorthorn herd free from tuberculosis and contagious abortion.

2. Alternate animals as they were born were allocated, without any selection whatever, to one or other of two groups. One of these was fed on raw, the other on pasteurized milk. Every animal received its mother's colostrum for three-and-a-half days before being put on the milk diet.

3. The milk used was taken from the mixed morning's milk of the whole herd. It was divided into two parts, one of which was given raw, the other of which was submitted to low-temperature pasteurization at 145° F. (62·8° C.) for 30 minutes and subsequently cooled. The animals were fed morning and evening on measured quantities that were in strict relationship to their body weight.

4. In addition to the milk, hay was allowed *ad lib.* Observations showed that practically none was eaten during the first month, after which each animal consumed about 1 lb. a day, rising to 3 lb. by the eighth week.

5. With the exception of two weaklings which died after 15 and 23 days respectively from causes apparently unconnected with the nature of their diet, all the animals—25 in the raw and 23 in the pasteurized group—throve well, and showed no obvious signs of rickets or anaemia.

6. The average increase in weight over the eight-week period for the animals in the raw group was 53·72 lb., and in the pasteurized group 53·86 lb., or 61·18 and 62·94 per cent. respectively. This practical identity in weight increase is all the more surprising in view of the fact that the number of bull calves was very much less in the pasteurized than in the raw group.

7. The highest individual gain among the bull calves—one of 80 lb.—and the highest individual gain among the heifer calves—one of 63 lb.—both occurred in animals fed on pasteurized milk.

8. At no time throughout the experiment was any observer, lay or professional, able to distinguish between the two groups of animals.

9. The diet given, though permitting of good skeletal development, was insufficient to fatten the animals. After they had been transferred, however, to a normal diet at the conclusion of their eight weeks in the experiment, they soon put on weight and within two or three months were indistinguishable in size or condition from animals that had received a more generous diet from birth.

10. There is nothing in these results to suggest that the nutritive value of pasteurized milk for calves is in any way inferior to that of raw milk.

Acknowledgement.—We are indebted to United Dairies, Ltd., for a grant in aid of the expenses of this investigation.

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Rapid Detection of B. tuberculosis in Milk

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The publication in the *Lancet* of May 29th, 1937, under the above heading, of a paper* by Mary L. Cowan Maitland, B.A., M.B., prompts me to enlarge on the clinical aspect of the cases in the first series, in which I had the pleasure of collaborating with the writer.

Briefly, the paper describes an experiment which was, and is still being, carried out with samples of milk taken from each quarter of every cow in the herds concerned, with the object of determining if it was possible to find out by the microscopic examination of milk films the number of cows giving tubercle bacilli without recourse to the biological examination.

The advantages of being able to detect and eliminate such cows in 48 hours instead of three to six weeks (and often very much longer) are too obvious to require elucidation, whether from the point of view of the farmer, veterinary officer or consumer.

*An abstract of Dr. Maitland's paper is printed on page 835 of this issue of the *Veterinary Record.—Editor.*

An essential point was to prove that the chances of detecting tubercle bacilli by means of the "cell grouping" method were very much greater when a sample from each quarter was examined than when a sample containing milk from all four quarters was used. That this is the case is quite definitely shown in the tables given below.

The cases in the series with which I was concerned were all herds from which a bulk sample had been taken and a positive biological result obtained. Twenty-seven were farms situated outside Manchester from which the milk was sent to dairymen inside the city, and the remaining nine farms were situated inside the Manchester boundary. The cases were taken at random, and the herds varied in size from 11 to 51 animals in milk—the average for the 36 herds being 21.

In the 27 extra-city herds the usual clinical examination was carried out under Section 4 of the Milk and Dairies (Consolidation) Act, 1915, in conjunction with the veterinary officer of the local authority concerned. The latter took whole-udder samples from any clinically suspicious cows and one or more group samples from the remainder of the herd. At the same time I took a separate sample from every quarter of each cow in milk. Approximately 2 oz. was taken for each sample when possible, although it was often impossible to obtain even that amount. The samples were marked in order that each quarter of each cow could be identified by me, but in no case was any indication given of the clinical findings, so that the results depended entirely on the efficacy of the microscopic examination.

The technique employed in the preparation and staining of the films is fully described in the paper in the *Lancet*.

The eleven cases tabulated (opposite Table I) are those referred to as (*a*) in Dr. Maitland's paper in which no cow was found giving milk containing tubercle bacilli or cell-groups indicating udder tuberculosis.

It will be seen that in every case the negative microscopic finding was confirmed by the biological testing of group samples and/or control samples. Even in these negative cases the experiment proved of practical value in that the milk from suspected udders was held up for a few days only instead of the minimum biological test period of three weeks.

The second group (Table II) comprises two herds from each of which cell-groups were found but no tubercle bacilli.

The third group (Table III: pages 826 and 827) comprises 23 herds from which one or more cows were found to be giving milk containing tubercle bacilli in films.

It will be seen that, of the 23 herds, an affected cow was found by the quarter-sampling

Table I.

Case No.	Microscopic Examination of Quarter-Samples.	Samples submitted to Biological Examination.	Clinical Notes.	Cows sold since date of original Positive Bulk Sample.	
1	All negative	Two group samples and a later control sample all proved negative	Very slight induration in one udder only	One	
8	All negative	Single sample (Cow No. 1) and one group sample both negative Later control sample negative	Cow No. 1 had suspicious left hindquarter (induration and hypertrophy)	Two	
10	All negative	Single sample (Cow No. 12) and one group sample both negative	Cow No. 12 had both forequarters indurated	?	
14	All negative	Group sample from whole of herd negative	No suspicious udders	One	
15	All negative	Group sample from whole of herd negative	Many irregular udders from streptococcal mastitis	Two	
26	All negative, but cell-groups in three films	Control sample from whole of herd negative	Many irregular udders from streptococcal mastitis	One	Repeat samples from the 3 cows again showed c.g. but no tubercle bacilli. Each gave negative biological result
29	All negative	Two single samples (Cows Nos. 31 and 35) and group sample all negative Later control sample negative	Cows Nos. 31 and 35 both had " fleshy " udders, but were not clinically suspicious of tuberculosis	Two	
30	All negative	Single sample (Cow No. 15) and one group sample both negative Later control sample negative	Cow No. 15 had a suspicious induration in right forequarter	One	
31	All negative	Single sample (Cow No. 7) and one group sample both negative	Cow No. 7 had hypertrophy and induration of right hindquarter	Three	
32	All negative	Group sample from whole of herd negative	No suspicious udders	*One	*Taken under Tuberculosis order
33	All negative	Single samples (Cows Nos. 6 and 19) and one group sample all negative Later control sample negative	Cow No. 6 had hypertrophied right hindquarter, and No. 19 had indurated right hindquarter	Five	

Table II.

Case No.	Microscopic Examination of Quarter Samples.	Samples submitted to Biological Examination.	Clinical Notes.	Cows sold since date of original Positive Bulk Sample.	
11	All negative, but No. 10 had cell-groups	Two group samples negative Control sample negative	Cow No. 10 had suspicious induration in right hindquarter	Three	C.V.O. found tubercle bacilli in whole-udder sample by microscopic examination
19	All negative, but No. 12 had cell-groups Repeat sample from No. 12 positive	Control sample negative	Cows Nos. 1, 6, 13, 14 and 16 all showed udder irregularity, but No. 12 was not clinically suspicious	One	After the repeat sample had proved positive a particularly careful examination of the udder revealed a slight atrophy and induration of the right forequarter. This was noticeable only when the udder was *full*

TABLE III.

Case No.	Microscopic Examination of Quarter Samples.	Samples submitted to Biological Examination.	Clinical Notes.	Cows sold since date of original Positive Bulk Sample.	
2	No. 16 + Rest —	Group sample from rest of herd —	No. 16 had typical induration of both hindquarters	One	C.V.O. reported whole-udder sample from No. 16 — mic. but c.g. present Biological examination proved +
3	No. 2 + No. 3 + Rest —	Control sample —	Many very irregular udders (streptococcic mastitis)	None	Samples of milk from both these cows had given — result to biol. test within the previous 3 months
4	No. 11 + Rest —	No. 11 + Group sample from rest of herd —	No. 11 had hypertrophied left hindquarter with slight induration	None	C.V.O. reported whole-udder sample from No. 11 — mic. Biological examination +
5	No. 9 + Rest —	No. 9 +. Group sample from rest of herd — Control sample —	No. 9 showed induration in the right forequarter	None	C.V.O. reported whole-udder sample from No. 9 — mic. Repeat sample proved + mic.
6	No. 3 + Rest —	Group sample from rest of herd — Control sample —	No. 3 showed typical induration in left hindquarter	None	C.V.O. reported whole-udder sample from No. 3 + mic.
7	No. 1 + Rest —	Group sample proved — although the milk of No. 1 cow was included !	No. 1 showed no clinical symptoms of tuberculosis	Five	C.V.O. revisited and took sample from No. 1, but reported it — mic., but c.g. present Biological examination proved +
9	No. 5 + Rest —	Group sample from rest of herd proved —	No. 5 showed typical tuberculous hypertrophy and induration	None	C.V.O. reported whole-udder sample from No. 5 + mic.
12	No. 3 + Rest —	Two group samples from rest of herd — Control sample —	No definitely suspicious udder No. 3 showed a very slightly indurated right handquarter	One	C.V.O. reported whole-udder sample from No. 3 — mic Biological examination proved +
13	No. 9 + Rest —	Group sample proved — although the milk of No. 9 was included !	No. 9 showed no clinical symptoms of tuberculosis	One	C.V.O. revisited and took sample from No. 9. Reported it + mic.
16	No. 14 + No. 31 c.g. Rest —	Two group samples both + (1st group included milk from No. 14, 2nd group included No. 31)	Neither No. 14 nor No. 31 showed clinical symptoms of tuberculosis. Nos. 11 and 27 both showed some udder induration	None	C.V.O. reported both No. 11 and No. 27 — mic. Revisited and took quarter-sample from No. 14 but reported it — mic. Biological examination proved + No. 31 had gone dry and was sold for slaughter
17	No. 11 + Rest —	Group sample from rest of herd proved —	No. 11 showed typical hypertrophy and induration in right hindquarter	None	C.V.O. reported whole-udder sample from No. 11 + mic.
18	No. 9 + Rest —	Group sample from rest of herd proved —	No. 9 showed typical hypertrophy and induration in right hindquarter	Four	C.V.O. reported whole-udder sample from No. 9 + mic.
20	No. 5 + Rest —	Group sample from rest of herd proved —	No. 5 showed hypertrophy and induration in right hindquarter	None	C.V.O. reported whole-udder sample from No. 5 — mic. Biological examination proved +
21	No. 12 + No. 32 + Rest —	Two group samples taken, of which one proved —, and other (including milk from No. 32) + Control sample —	No. 12 showed typical hypertrophy and induration in left hindquarter No. 32 had a very slight induration in right hindquarter— not suspicious enough for single sample	One	C.V.O. reported whole-udder sample from No. 12 + mic. Revisited and took sample from No. 32, but reported it — mic. Biological examination proved +

Table III (*continued*).

Case No.	Microscopic Examination of Quarter Samples.	Samples submitted to Biological Examination.	Clinical Notes.	Cows sold since date of original Positive Bulk Sample.	
22	No. 2 + Rest —	Group sample proved — although including milk from No. 2 !	No. 2 showed no clinical symptoms	Four	C.V.O. revisited and took sample from No. 2 and reported it + mic.
23	No. 23 + Rest —	Group sample from rest of herd proved — Control sample —	No. 23 showed hypertrophy of left hindquarter. Twice sampled previously by C.V.O. with — result	None	C.V.O. reported whole-udder sample from No. 23 — mic., but repeat sample proved + mic. and biol.
24	No. 7 + Rest —	Group sample from rest of herd proved —	No. 7 showed typical hypertrophy and induration in left hindquarter	None	City Farm. No whole-udder sample taken
25	No. 13 + Rest —	Control sample —	No. 13 showed hypertrophy and induration in right hindquarter No. 14 had slight hypertrophy of left hindquarter	Two	City Farm. Herd had been examined six weeks previously when No. 13 had shown no udder irregularity whatever
27	No. 19 + Rest —	Two group samples from rest of herd proved — Control sample —	No. 19 showed typical hypertrophy and induration in right forequarter	Two	C.V.O. reported whole-udder sample from No. 19 + mic.
28	No. 35 + Rest —	Group sample from rest of herd proved — Control sample —	No. 35 showed typical induration in right forequarter	None	C.V.O. reported whole-udder sample from No. 35 + mic.
34	No. 15 + Rest —	Two group samples proved — although one included milk from No. 15 !	No. 15 showed no clinical symptom of tuberculosis	Two	C.V.O. revisited and took sample from No. 15. This proved + mic.
35	No. 5 + Rest —	Group sample from rest of herd proved —	No. 5 showed typical hypertrophy and induration in left hindquarter	Two	C.V.O. reported whole-udder sample from No. 5 + mic.
36	No. 15 + Rest —	Three group samples taken. Two proved — and other + (latter included No. 22)	No. 15 showed no clinical symptom. No. 22 showed induration in left hindquarter	Two	C.V.O. reported whole-udder sample from No. 15 — mic., but biol. exam. proved +. Investigation is not yet complete

method in seven cases when there was no clinical evidence of tuberculous infection of the udder (Cases 7, 13, 16, 21, 22, 34 and 36). The positive finding was confirmed in each of these cases, either microscopically or biologically, on examination of a second sample.

In two cases an affected cow was found by the quarter-sampling method when the whole-udder sample from the same animal was reported negative (Cases 5 and 23). Repeat samples again confirmed the positive finding on microscopic examination.

In four cases an affected cow was found by the quarter-sampling method when the whole-udder sample from the same animal was reported negative, but repeat samples were also negative (Cases 2, 4, 12 and 20). In each of these, however, the repeat sample proved positive to the biological test, thus confirming the quarter-sample result.

In eight cases the microscopic result was positive in the quarter-sample and in the whole-udder sample (Cases 6, 9, 17, 18, 21, 27, 28 and 35). Group and/or control samples taken from these herds confirmed the fact that the infection had been entirely eliminated.

In one case (No. 3) two affected cows were found by the quarter-sampling method when it is probable that investigation by the usual methods would have been long drawn out on

Explanatory Note of terms used in Tables

Single sample.—Sample taken from an individual cow on account of suspicious udder irregularity.

Group samples.—Samples taken from several cows comprising all the cows in milk with the exception of those from which single samples have been taken.

Control sample.—Sample of the mixed milk of the whole herd, taken either at the farm or on arrival at a dairy or depôt, with the object of ascertaining if the infection has been completely eliminated.

C.V.O.—County Veterinary Officer.

Mic.—Microscopic examination.

Biol.—Biological examination.

C.G.—Cell groups.

account of the large proportion of irregular udders in various stages of streptococcic mastitis.

In two cases (Nos. 24 and 25) the clinical symptoms shown by the affected cows were conclusive. Quarter-sampling gave a positive result but no whole-udder samples were taken.

Cases 7, 13, 22 and 34 proved of particular interest, as will be seen from Table No. 3, in that the affected cow in each case showed no clinical indication of tuberculosis at the time of the inspection and the milk was therefore included in a group sample. The examination of the quarter-samples found the offender, whilst the biological examination was reported negative in each case. The numbers of cows included in these group samples were 13, 9, 38 and 13 respectively. In cases 7 and 34 the tubercle bacilli in the quarter-sample were very scanty, and in the former a repeat sample from the affected cow was reported negative microscopically by the County Veterinary Officer concerned. The sample proved positive to the biological test, however, whilst in the three other cases repeat samples taken by the County Veterinary Officers proved positive under the microscope. These results were confirmed by the *post-mortem* examinations of the carcases.

. . . . .

These results do strongly suggest that there are great possibilities in this method with regard to the more rapid elimination of infected animals from herds known to be producing tuberculous milk. From the 25 cases in which an affected cow (or cows) was found, on only one occasion was a positive result obtained in the whole-udder sample and a negative result in the quarter-sample (Case No. 11). The quarter-sample in this case showed suspicious cell-grouping, but it was unfortunately not possible for a repeat sample to be obtained before the affected animal was slaughtered.

I think I am correct in saying that the general opinion is that the officer who carries out the clinical inspection of a herd is the person best suited to examine the microscopic films of the samples taken, but this experiment suggests that this view may not have a sound basis. The laboratory worker is in a much better position to become expert in the preparation and staining of films than is the field worker, and the experience in many of the cases mentioned above has been that detection of the infected quarter or udder is quite as easy without the clinical picture as with it; in fact, the latter may cause some waste of time in the examination of negative films.

Since the paper was written for the *Lancet* some of the results of the examination of samples which were not available at the time have come to hand. The results confirm the findings of the experiment in each case, and only Case No. 36 is still incomplete.

The Veterinary Record

July 3rd, 1937.

Herd Management in Relation to Milk Production

IN view of the continued interest in all that pertains to milk, we feel that no apology is needed for drawing our readers' attention once again to the part in the national campaign for improving the milk supply which members of the veterinary profession must play.

In our Editorial columns of May 22nd a scheme was outlined wherein it was suggested that the control of milk production should pass out of the hands of the medical officer and be vested in those of the veterinary officer, to whom both in theory and practice it ought to belong. In that issue, an outline of the suggested organisation was given; it is now our purpose to draw attention to further details of the supervision and control of milk production which must be envisaged.

It is axiomatic that to produce the best milk of highest nutritive value and in maximum quantity, only cows which are maintained in perfect health should be employed. Apart from the very important aspects of contamination of milk with those pathogenic agents that provoke disease in cows or in human beings, there is a large and so far only lightly-touched sphere of work to be undertaken in connection with diet and management of cows, feeding and rearing of calves, and the general supervision of the milking herd.

The modern veterinary surgeon, by his training, possesses a knowledge of anatomy and physiology superior to that possessed by the agriculturalist, and it is not in the best public interests that advice upon problems of animal nutrition, which to be effective depends so fundamentally upon a thorough knowledge of anatomy and physiology, should often be given by those whose training is less thorough in these two branches of knowledge. We do not desire to belittle the importance, or the thoroughness of the training, of the agricultural advisory officer, but we feel that in matters of detailed comparative physiology, the modern veterinarian is equipped more efficiently to advise upon matters of nutrition.

The importance of incorporating modern knowledge of nutrition into actual farming

practice is already fully realised by the progressive livestock owner, and he is turning for help more and more to his local veterinary surgeon and to the veterinary officer. When research work, still in progress, has been completed, it seems likely that there will be far greater possibility of ensuring that the milk produced for human and animal consumption will be a more adequate diet with a higher food value than it is at present. The important association between the intake of provitamin A (carotene) by the cow and the level of vitamin A activity of the milk is already well understood, so are the similar relative associations of vitamin D, but much remains to be discovered regarding the influences of food upon fat content, total solids, excretion of minerals, amount of antitoxin content, and many other similar important qualities.

Further, with reference to adequacy of ventilation, lighting, comfort of the animals (which includes bedding, grooming, etc.) and drainage of the byre, as well as regarding the effects of draughts, dampness, over-heating and other matters relating to the environment of the cow herself, although the sanitary inspector and the agricultural adviser may quote figures of cubic air space per cow, and may advise on this or that *desideratum*, the fact remains that such advice must often be empirical. Apart from well-known authorities associated with research institutes, members of the agricultural services cannot possess such a lively appreciation of bovine physiology as the trained veterinarian.

Experience in almost every large dairying district in Britain shows that there is a considerable loss on many dairy farms—directly from calf mortality and indirectly from calf illnesses—which should be prevented. Even upon farms otherwise well managed mistakes in calf-rearing are frequently made. Some of these losses are due to mismanagement and some to disease. In both these provinces, the veterinarian, when consulted early, can give advice and guidance which mitigates or prevents the loss and renders the farm a more economic and profitable concern. Too often consultation only occurs after the losses have begun, when it is too late to exercise maximum benefits.

In addition to actual disease control among calves, there is an important function for the veterinarian to perform in improving the general level of the health and rearing of young stock and thereby to lay the foundations for a hardier, healthier and more productive type of dairy stock in this country. We envisage the incorporation of our profession in a future organisation of this aspect of the control of dairy herds and milk production.

It has already been pointed out previously in these columns that an adequate veterinary service can be a much more potent factor in ensuring a greater measure of health for the community than the average member of the public realises, provided the profession is given the opportunity. We feel confident that when the opportunity arrives—as it undoubtedly will—our individual members will be ready and fitted to seize it.

MINISTER'S STATEMENT ON AGRICULTURAL POLICY

Memorandum on the Financial Resolution*

The Financial Resolution provides the necessary authority for carrying into effect the proposals outlined in the statement of agricultural policy made by the Minister of Agriculture and Fisheries in the House of Commons on May 27th, 1937. The proposals are as follows:—

Lime and Basic Slag

(1) In accordance with the provisions of a Scheme to be jointly made, with the consent of the Treasury, by the Minister of Agriculture and Fisheries and the Secretaries of State concerned with agriculture in Scotland and Northern Ireland, respectively, it is proposed that contributions may be made out of moneys provided by Parliament to any occupier of agricultural land in the United Kingdom, including land devoted to horticulture, towards the cost incurred by him in acquiring and transporting any quantity (not being less than two tons) of lime or basic slag, as such, for the purpose of adding it to the land in his occupation in order to improve the fertility of the soil. It is proposed that the contributions shall not exceed, as nearly as may be:—

(*a*) in the case of lime, one-half;

(*b*) in the case of basic slag, one-quarter;

of the cost so incurred. The cost of spreading the lime or basic slag on the land will be borne by the occupier himself.

(2) Small farmers, small holders and allotment holders who join together to purchase a two-ton

*Presented by the Minister of Agriculture and Fisheries, the Secretary of State for Scotland and the Secretary of State for the Home Department to Parliament by Command of His Majesty, June, 1937. Cmd. 5493. To be purchased directly from H.M. Stationery Office at the following addresses: Adastral House, Kingsway, London, W.C.2; 120, George Street, Edinburgh, 2; 26, York Street, Manchester, 1; 1, St. Andrew's Crescent, Cardiff; 80, Chichester Street, Belfast; or through any bookseller. Price 2d. net.

lot of lime or basic slag will be able to participate in the Scheme. Purchases of lime or slag for use on private gardens will not rank for contributions.

(3) It is intended that contributions shall only be payable in respect of lime and basic slag produced in the United Kingdom and supplied by approved suppliers (producers and merchants).

(4) Lime will include all forms of calcium oxide, calcium hydroxide and calcium carbonate, that are commonly used by farmers for liming their land, including waste limes which are of sufficient calcium oxide (or equivalent) content to justify their use for the purposes of the Scheme.

(5) It will be a condition of the approval of suppliers that they undertake to supply lime or basic slag at approved prices not exceeding those operating on May 1st, 1937, *i.e.*, before the proposals were announced in Parliament, and that they agree to afford facilities for any necessary verification of their prices. Provision will be made in the Scheme for the subsequent adjustment of prices in accordance with ascertained variations in the costs of production and distribution due to circumstances over which suppliers have no control, *e.g.*, increases in the cost of fuel and labour and any general increase in railway rates.

(6) Subject to appropriate safeguards, standard rates of contribution (calculated so as to represent, as near as may be, one-half of the cost) will be paid to farmers who dig or procure their own supplies of chalk, waste lime, etc., using their own transport.

(7) It is proposed to appoint a Land Fertility Committee whose duty it will be to exercise such functions as may be assigned to them by the Scheme and to advise Ministers upon any matters relating thereto.

(8) Provision will be made to enable sums not exceeding 2d. per ton of lime or basic slag supplied under the Scheme to be collected from approved suppliers and from persons receiving contributions under the Scheme, the proceeds to be devoted to research, investigation and instruction as to the use of lime or basic slag as means of promoting the fertility of the soil.

(9) Advice to farmers as to the most efficient methods to adopt for applying lime and basic slag to their land will be available, as hitherto, through the medium of the Agricultural Education Services.

(10) The Scheme will last until July 31st, 1940, and will be renewable thereafter, for not more than two successive periods of one year, subject to the approval of Parliament.

(11) Exchequer contributions under the Scheme are estimated to cost £1,000,000 in the first year. It is anticipated that the cost in subsequent years will be somewhat greater, but an accurate forecast cannot be made at this stage of the amount that Parliament will be asked to provide.

(12) No precise estimate can be made of the expenses of administering this scheme, but it is considered that the additional cost in this respect should not exceed the sum of £35,000 a year.

Oats and Barley

(13) As a measure of security for those growers of oats and barley who do not receive benefit from the Wheat Act, 1932, it is proposed that subsidy payments may be made by the appropriate Minister to any occupier of a farm in the United Kingdom in respect of each acre of land under oats or barley on that farm on June 4th, 1937, and in any of the succeeding four years, if the United Kingdom average price of home-grown oats harvested in that year falls short of 8s. per cwt. by 5d. or more: provided that, if the farm comprised land under wheat, the occupier has duly elected in that year to avail himself of oats or barley subsidy payments; and if he has so elected no deficiency payments shall be payable to him under the Wheat Act, 1932, in respect of any wheat harvested in that year from land on that farm.

(14) It is proposed that payment shall be made in respect of each acre of oats or barley at the rate of an amount equal to six times the difference between the United Kingdom average market price of oats (if such price is 7s. 7d. per cwt. or less) and the standard price of 8s., subject to a maximum payment of £1 per acre.

(15) The average market price of home-grown oats in England, Scotland and Northern Ireland respectively will be computed each year in accordance with rules made jointly by the Minister of Agriculture and Fisheries and the Secretaries of State concerned with agriculture in Scotland and Northern Ireland, respectively; from the average prices so computed for each of the three countries a United Kingdom average price, to be declared each year by Order, will be computed by weighting in accordance with the acreage of oats in each country qualifying for subsidy payment.

(16) It is proposed to determine a national standard acreage for oats and barley, respectively. This national standard acreage will be eleven-tenths of the total acreage of land qualifying for oats or barley subsidy payments, as the case may be, in the year 1937. If in any of the subsequent four years the acreage qualifying for oats or barley subsidy payments exceeds the standard acreage, the rate of subsidy payment per acre will be reduced proportionately so that the total payments in that year will be the same as they would have been if the qualifying acreage had been equal to the standard acreage.

(17) It is difficult to estimate the sum that Parliament will be asked to provide each year under the proposed legislation in respect of oats and barley payments seeing that two of the

factors are unknown, *viz.* (*i*) the qualifying acreage and (*ii*) the course of market prices of oats.

(18) The acreage qualifying for oat subsidy in any year, apart from whether it exceeds the standard oat acreage, will effect the rate of payment per acre as well as the total amount payable, seeing that the United Kingdom average price will be determined in accordance with the qualifying acreage of oats in each of the three countries. So long as the acreage qualifying for barley subsidy does not exceed the standard barley acreage, it will not affect the rate of payment per acre, though it will, of course, affect the total payments. It is impossible to make an accurate estimate of what these qualifying acreages will be as they will depend on the extent to which growers of wheat, oats and barley elect to avail themselves of oats or barley subsidy payments. It has, however, been roughly estimated that the total acreage of oats and barley qualifying for subsidy payment is not likely to be more than 1,750,000 acres in 1937.

(19) The future course of prices of home-grown oats depends largely on world causes. If the present level of prices is maintained, no subsidy for oats or barley will be payable. Some indication of the payments that might have to be made is afforded by the following table which shows, on the basis of the rough estimate of qualifying acreages in 1937 (referred to in the previous paragraph) what would have been, approximately, the United Kingdom average price of oats, the rate of subsidy per acre for oats and barley, and the approximate total amount of oats and barley subsidy payments, if the proposed oats and barley subsidies had been payable during the last seven years:—

Year.	Estimated U.K. Average Price of Oats per cwt. (Sept.-March).	Rate of Oats and Barley subsidy. Payments per acre.	Total of Oats and Barley subsidy payments on 1,750,000 acres.
	s. d.	s. d.	£
1930–31	5 4	16 0	1,400,000
1931–32	6 5	9 6	831,250
1932–33	5 7	14 6	1,268,750
1933–34	5 3	16 6	1,443,750
1934–35	6 3	10 6	918,750
1935–36	5 7	14 6	1,268,750
1936–37	7 0	6 0	525,000

(20) It seems unlikely that, during the next five years, prices will in any year fall below the lowest level reached in the period covered by the above table. With a view, however, to limiting the total amount of money that will be required for subsidy payments, it is proposed, as explained in paragraph (14), that the maximum rate of subsidy per acre of oats or barley shall be £1, and, as explained in paragraph (16), if the qualifying acreage for either oats or barley exceeds the respective standard acreage the total payments in that year for oats or barley, as the case may be, will be the same as they would have been if the qualifying acreage had been equal to the standard acreage.

(21) After taking into account the limitations referred to and the possible margin of error in the estimate of acreages that may qualify for subsidy payments, it seems unlikely that Parliament will be asked to provide in any year in respect of both oats and barley a sum of more than £1,750,000.

(22) It is hardly possible to form an estimate of the expenses of administering the scheme, when, as pointed out in paragraph (17) above, no information is available as to certain factors affecting the extent and amount of the subsidy payments, but it is considered that these expenses should not exceed the sum of £45,000 a year.

Land Drainage

(*a*) *England and Wales*

(23) At present Exchequer grants for land drainage are confined to grants to Catchment Boards (under Section 55 of the Land Drainage Act, 1930). It is now proposed to make grants towards expenditure on drainage of such amount, and subject to such conditions, as may be approved by the Treasury, to Drainage Authorities other than Catchment Boards, including County Councils and those County Borough Councils that possess an Agricultural Committee. These grants will not be available in the Special Areas within the meaning of the Special Areas (Development and Improvements) Acts, 1934 and 1937, as the Commissioners for the Special Areas already have power to make grants for land drainage purposes in those areas.

(24) It is proposed that the grants should be at a flat rate of 33⅓ per cent. for normal schemes of drainage but that grants of 50 per cent. should be available in the case of work involving the renewal of pumping plant and machinery, sluice gates and similar works involving the provision of expensive material. The period for which these grants will be available will be limited in the first instance to July 31st, 1940, but it is proposed to seek power to extend this date for not more than two successive periods of one year, subject to the approval of Parliament.

(25) Although it is not possible to form a precise estimate of the number of schemes which are likely to be submitted for grant, it is thought that the total cost of such schemes might be about £350,000 per annum, in which case it is estimated that Exchequer grants might amount to about £150,000 per annum.

(26) It is not anticipated that any substantial expenditure will be incurred in connection with the administration of these land drainage proposals.

(*b*) *Scotland*

(27) Express provision will be made along the lines of the scheme of assistance to owners and occupiers of agricultural land presently in operation in respect of expenditure on field and hill drainage works. Grants will be at the rate of 33⅓ per cent. of approved expenditure. It is thought that grant payments under this Scheme might approach £40,000 per annum in respect of a total expenditure of £120,000.

Diseases of Animals

(28) It is proposed that a large-scale campaign for the eradication of animal diseases shall be inaugurated. In the first instance attention will be mainly directed to bovine tuberculosis, supplemented by action directed towards the elimination of contagious abortion in tubercle-free herds. The scheme proposed may be outlined briefly as follows:—

Routine Clinical Inspection of Herds.

(29) It is proposed to carry out a routine veterinary inspection of all herds producing milk.

Tuberculin Test Survey of Self-contained Herds.

(30) The herds that will reveal the lowest incidence of tuberculosis are self-contained (*i.e.*, those which are maintained by breeding in the herd itself). A necessary step in the eradication campaign will be to ascertain the herds (whether milk-producing herds or not) which are free from disease, or nearly so, and with this object it is proposed—

(*a*) to locate the self-contained herds, and

(*b*) to carry out a tuberculin test survey of them as quickly as practicable.

This survey is estimated to cost £250,000 spread over two years.

Voluntary Attestation Scheme.

(31) It is proposed that payments to owners of milk-producing herds under schemes for the official attestation of herds certified to be free from tuberculosis should be continued until February 1st, 1941, and that such schemes should be extended to enable corresponding payments to be made in respect of herds maintained primarily for beef production. It is also contemplated that assistance may be given in connection with the testing of cattle for other diseases likely to affect the purity of milk. It is estimated that the cost of these services will somewhat exceed the unexpended balance (estimated at £675,000) of the sum of £750,000 provided by Parliament under Section 9 of the Milk Act of 1934 for the purpose of improving the quality of the milk supply.

(32) Provision for payments under subsection (1) of Section 9 of the Milk Act, 1934, in respect of the current financial year has been made under Estimates for Milk (England and Wales and Northern Ireland) (Class VI, 10) and Milk (Scotland) (Class VI, 22). The necessary adjustment of these Estimates to give effect to the extended proposals outlined above, and to the further proposal that the Minister of Agriculture and Fisheries shall be responsible for payments for this service throughout Great Britain will be effected by means of Supplementary Estimates.

Establishment of Attested Areas.

(33) It is also proposed to inaugurate a four-year plan for the cleaning up of areas which are known or found as a result of the Tuberculin Test Survey to have a comparatively low incidence of tuberculosis. In the areas selected, the plan would, at first, proceed on a voluntary basis until a substantial majority of the cattle are free from disease. The area would then be declared an eradication area and non-attested herds would be officially tested and the reactors destroyed with payment of compensation. The area would then be declared an attested area. The movement of cattle into, out of or within these areas would be controlled. The intention would be to develop the plan in subsequent years by the extension of the attested areas and the selection of other areas for cleaning-up. It is estimated that the cost will amount to about £350,000, spread over the four years.

Other Diseases of Animals.

(34) In carrying out these proposals, information will be accumulated on other diseases of animals, and the way thus prepared for measures to eradicate them. Apart from bovine tuberculosis, one of the most serious of the diseases of cattle is contagious abortion, and it is proposed to frame a scheme whereby the owners of all herds which have been officially tested and found to be free from tuberculosis will be given an opportunity of obtaining official certification as to freedom from contagious abortion as well. It is estimated that the cost of these measures will be about £50,000 spread over four years.

Poultry Diseases.

(35) It is proposed to promote the breeding and distribution of stocks of poultry which are free from disease by providing free services for owners of approved poultry breeding stations in regard to testing and examination of poultry. The cost is estimated to be about £25,000 spread over four years.

Centralised Veterinary Service

(36) In order to secure the efficient conduct and uniform administration of a national campaign of this character throughout Great Britain, it is proposed that all public veterinary services relating to animal diseases should be centralised under the Minister of Agriculture and Fisheries, including those performed by local authorities in relation to animal diseases and the veterinary examination of cattle.

(37) The transfer and extension of duties for the purposes of the proposals outlined above will, it is estimated, involve an additional charge in respect of salaries, fees, travelling, accommodation, and equipment of about £450,000 per

annum. There will be a relief to local rates of about £170,000 per annum in the present charges incurred by local authorities for their existing veterinary services.

Summary of Cost.

(38) The estimated additional charges on the Exchequer in respect of the proposals relating to animal diseases will therefore be:—

Tuberculin Test Survey ... (spread over two years).	£250,000
Establishment of Attested Areas (spread over four years).	£350,000
Contagious Abortion ... ... (spread over four years).	£50,000
Poultry Diseases ... ... (spread over four years).	£25,000

In addition, expenditure, up to February 1st, 1941, in connection with Voluntary Attested Herds Schemes is likely somewhat to exceed the unexpended balance of the sum of £750,000 provided in Section 9 of the Milk Act, 1934.

An additional charge in respect of the extension of the State veterinary service estimated to amount to £450,000 per annum.

PLIGHT OF POULTRY KEEPERS

Review of "Disastrous Year"

Since 1931 poultry keepers have experienced a succession of lean years, and, according to the annual report of the National Poultry Council presented at the National Poultry Parliament at Southend-on-Sea, on June 16th, the period under review has been the most disastrous yet endured by the industry. The large increase in the price of foodstuffs and the persistent increases in the imports of eggs and egg products are stated to be primarily responsible. The delay on the part of the Government in announcing any long-term policy for the industry is, states the report, also a contributory cause. A large number of poultry keepers have gone out of business and others have greatly curtailed theirs.

During the twelve months imports of eggs in shell increased by 3,295,723 great hundreds, or 15·38 per cent.; eggs not in shell by 157,430 cwt., or 19·16 per cent.; and dead domestic poultry by 58,619 cwt., or 14·59 per cent. As an indication of the persistency of the imports of eggs in shell it is shown that in each month since January, 1936, with the exception of February, 1937, there has been an increase over the corresponding month in the previous year.

Reference is made to the applications for increased duties; and with regard to marketing reform, on which no measure of agreement has been arrived at by the industry, it is stated that no scheme of marketing reform framed by human ingenuity will satisfy every section of the industry. The governing principle must be "the greatest good of the greatest number." Until the industry gets together and tackles the question in that spirit little progress will be made. The industry must decide whether it wants a scheme of marketing reform, and, if so, whether that scheme shall be compulsory or voluntary. If poultry keepers are unable to reach agreement on these matters the possibility of some scheme of marketing reorganisation being forced on them cannot be precluded.

CLINICAL COMMUNICATIONS

A Note on a Tuberculous Milk

F. H. ADDISON, B.Sc., M.R.C.V.S., D.V.S.M.,
and
H. M. SALUSBURY, M.R.C.V.S., D.V.H.

The excuse the writers offer for citing the following case is that they believe that there is a mass of clinical material known relative to the detection of the tuberculous udder but, so far as they are aware, little of it is recorded.

The subject of this note was a cow in milk of Lincoln type in nearly fat condition and weighing about 12 cwt. According to her owner, she had calved her third calf last September. She was one of a city herd of six cows and her owner habitually keeps his cows in good condition.

Clinical History.—The cow was first seen by one of us (F. H. A.) on January 14th, 1937, during the course of routine clinical examination of the herd. Particular attention was paid to her as it could be seen at a very casual glance that her udder was abnormal. The animal was in good condition and had every appearance (the udder excepted) of being in perfect health. No cough was evident and a careful search failed to reveal any sign of sputum. The udder was large and of the fleshy type. The right hind quarter was obviously enlarged and on palpation had all the characteristics of the tuberculous udder. The milk secretion from this quarter was not diminished in quantity but it was a faint yellowish-brown in colour and was not clotted. The other three quarters appeared normal. According to the owner, the indurated quarter had "gradually grown harder and bigger" in the course of the last 14 days.

Microscopic examination of the milk—the greater part of which was drawn from the affected quarter and a few c.c. from each of the other teats—revealed several of the cell groups of Torrance but no acid-fast bacilli. The sample was forwarded for biological test—result negative for tuberculosis.

On March 9th, 1937, seven weeks later, the cow was again examined (F. H. A.) and still seemed in excellent health. The udder showed no change. The milk was again examined microscopically and showed quite a number of cell groups. It was mixed with a post-clinical herd sample containing the milk of 44 other cows and sent for a biological test. Result negative.

On April 20th, 1937, the cow was examined (F. H. A.) for a third time and on this occasion

showed evidence of acute respiratory trouble. The udder was still abnormal but had not further increased in size. Samples of sputum and milk were taken and examined microscopically. Tubercle bacilli were demonstrated in the sputum, but neither tubercle germs nor cell groups could be demonstrated in the milk.

The tuberculous sputum having been obtained from the cow, the case was thought of sufficient interest to be seen by the other. She was then examined in detail by both of us. Her temperature was 104° F., respiration hurried with a lifting of the flank at each expiration. Her owner said that she had lost appetite during the last few days and on the day of our visit had eaten very little. On palpation of the udder three of the quarters and teats appeared normal. The right hind quarter had the feel of a typical tuberculous udder, induration gradually increasing from below upwards and becoming particularly marked at the upper and posterior curve of the border of the quarter. There was no thickening of the teat canal.

We agreed that we were probably dealing with a case of generalised tuberculosis accompanied by miliary tuberculosis of the lungs and a tuberculous udder.

The cow was slaughtered on April 21st, 1937, and immediately before slaughter a sample of milk was drawn from her—the greater quantity of the sample from the hardened quarter and a few c.c. from each of the other three quarters. The milking was done with clean hands into a sterile bottle.

After the *post-mortem* examination the milk was examined (H. M. S.) microscopically in the usual way, two smear preparations being made. No cell groups were found and prolonged search (half-an-hour each smear) failed to reveal acid-fast bacilli resembling the tubercle bacillus.

The sample of milk was inoculated the next day into a guinea-pig and on May 20th, 1937, the result was returned as positive for tuberculosis.*

The *post-mortem* examination revealed tuberculous lesions as follows: head (retropharyngeal glands), lungs (glands and substance, miliary tuberculosis both lungs), liver (capsule and glands), spleen (capsule), kidneys, uterus, intestines (mesenteric lymph glands, some as large as an orange, old-standing), pleura, peritoneum. The supramammary lymphatic glands were much enlarged and congested but no actual lesions of tubercle were visible to the naked eye.

Udder: No apparent change was visible in three of the quarters. The right hind quarter was larger than the others. On section it was denser, with the greater density near to the upper and posterior border. Here it was appreciably "rough" and rather gritty to the knife. The lesion, however, did not appear to be a typically tuberculous one—it seemed to be more of the nature of a collection of an excessive amount of fibrous tissue. A piece of the hardened part of the quarter was sent to Professor Edington, of Sheffield University, who very kindly prepared sections, and to him I am indebted for the following observations on the sections:—

"I have had numerous sections cut from the cow's udder you sent me and of these I enclose two. I have been unable to find in any of them any sign of tuberculous infection. You will notice that they show a definite chronic mastitis.

"As I mentioned to you on the telephone, this rather perfunctory examination is not sufficient to exclude tuberculosis as, really to do this in a satisfactory manner, it would be necessary for me to have the whole tissue sectioned."

Observations.—The case is of interest because of the several, at first sight, conflicting findings. Firstly, the clinical udder, the cell groups, the inability to demonstrate tubercle bacilli microscopically, the negative biological results on two occasions. Then the breakdown of the animal, together with the advanced state of disease at *post-mortem* examination, the inability to demonstrate cell groups or tubercle bacilli in the milk drawn immediately before slaughter, and, finally, the positive biological result.

The story may be merely a coincidence of fortuitous circumstances. A possible solution is that the fibrosis of the right hind quarter was the result of an earlier streptococcal mastitis and that later, owing to a co-existing tuberculous infection of the animal, the quarter succumbed to a rather sudden superimposed tuberculous invasion.

* * * * *

Intravenous Euthanasia with Sulphate of Magnesia

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Since the demonstration by Professor J. G. Wright at the Scarborough Congress of euthanasia in the dog by means of the intravenous injection of a one-in-one freshly prepared solution of magnesium sulphate in water, we have used this method on over 30 dogs, whose ages varied from three months to 13 years and comprised the following breeds: wire terriers, greyhound, retrievers, bulldog, bull terriers, Airedales, Labradors, Alsatian, red setter, St. Bernard.

*We are indebted to Professor Edington, Sheffield University, for this report.

Remarks.—This is, in our opinion, a quick, efficient and painless method of destruction. It would appear that 10 c.c. of the one-in-one solution is sufficient for small dogs. But because we had one Airedale in which 10 c.c. was not immediately lethal and which necessitated a further 10 c.c., we have accordingly increased the dose to 20 c.c., it being found as easy to give 20 c.c. intravenously as 10 c.c. Since using the bigger dose, *viz.*, 20 c.c., we have had only one case, this being a St. Bernard weighing 11 stone, which although completely collapsed by 20 c.c. intravenously was given a further 20 c.c. into the heart.

There are, in our view, two disadvantages of the method: (1) it is an operation which calls for the assistance of two people other than the operator; (2) the solution has to be freshly prepared for each case.

Whilst both these objections easily can be overcome, they of necessity confine this method of destruction to those premises where skilled assistance is available.

As against these, however, its great advantages are: (1) rapidity of action; (2) absence of undesirable symptoms; (3) negligible cost.

[The author forwards a record of 32 cases in which this method of inducing euthanasia was employed. The results are uniformly described as "very satisfactory," there being a "slight whimper" in four cases only.]

CRUELTY TO ANIMALS: COMPLAINTS TO R.S.P.C.A.

Presiding over the annual meeting of the Royal Society for the Prevention of Cruelty to Animals at the Kingsway Hall, Sir Robert Gower said that the Society's inspectors had been asked last year to deal with a greater number of complaints than they had had in any previous year.

The number of complaints investigated fell just short of 33,000, which was an increase of some 1,300 over the year before. This did not mean that there was more cruelty, but that the public was taking a greater interest generally in the work of the protection of animals and birds. Arising out of the complaints about 19,000 people were warned, and just short of 1,800 were sent to prison or fined. Benches throughout the country were, in general, inflicting more severe penalties for cruelty to animals, but at the same time there were most amazing instances of inadequate penalties.

An outstanding feature of the Society's work during the last year was the extraordinary development of its free veterinary work [carried on in conjunction with members of the veterinary profession.—*Editor.*] for sick and injured animals belonging to poor people. No fewer than 151,504 animals were painlessly put to sleep last year.

ABSTRACTS

[Rapid Detection of B. tuberculosis in Milk. Maitland, M. L. C. (1937.) *Lancet.* I. 1297-1299.]

Following up the pioneer work on the microscopical diagnosis of tuberculous mastitis by the identification of endothelioid cell groups, the author has investigated a number of variations in technique with a view to evolving a simple, rapid and reliable procedure. Her findings are as follows:—

(*a*) Cell-groups are most easily found in the deposit from milk which has been centrifuged for three minutes at about 2,500 r.p.m. More rapid or prolonged centrifugation is detrimental.

(*b*) Films of deposit are best prepared by pouring off all cream and fluid after centrifugation. The tube is then held inverted and, using a wire loop bent at right angles, two loopfuls are transferred to a clean new slide. This material is then spread with another glass slide as in the making of a blood film. This procedure is advantageous because cell-groups tend to collect at the edge of the smear and are thus more easily found.

(*c*) Films so prepared should be dried in air for at least 30 minutes and *lightly* fixed in a flame. They should then be defatted with a mixture of equal parts of alcohol and ether acting for 15 minutes and stained by the Ziehl-Neelsen method. By using glass slide holders standing in photographic dishes containing stain (carbol fuchsin can be heated in a stainless steel dish), large batches of smears can be stained simultaneously.

(*d*) Stained films are examined under low magnification for the presence of cell groups and when found these groups are examined under high magnification for the presence of acid-fast bacilli.

The adoption of the above precautions raised the microscopical examination of milk samples to a high level of efficiency and, when quarter samples from 950 cows were examined in this manner, the findings were in agreement with the results of the biological examination of the milk or the *post-mortem* examinations of the cows, in all but a single instance.

E. J. P.

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[Urinary Antiseptics (including Sodium and Ammonium Mandelate). [Discussion.] *Proc. R. Soc. Med.* 1937. **30.** 501-514]

This discussion on urinary antiseptics was opened by Dr. M. L. Rosenheim, who outlined the search that had been made for a urinary antiseptic that would survive the test of a prolonged clinical trial. In the category of urinary antiseptics drugs that have been used for lavage and local application are not

included. The introduction of the ketogenic diet as a means of treating urinary infections, while hailed with acclamation in some quarters, never attained the popularity in this country that it holds in the United States. The search for a hydroxy-acid allied to B-hydroxy-butyric acid, which would not be oxidised in the body—as B-hydroxy-butyric acid is when given by mouth —and which would be excreted unchanged in the urine, led to the discovery of mandelic acid. Mandelic acid was shown to be non-toxic to dog and man when given in large doses, and the urine was shown to be bactericidal, though only when the urine had a low *p*H. Acid sodium phosphate given by mouth does not produce a sufficiently low *p*H in the urine for this purpose; it was, therefore, necessary to give ammonium chloride which produced a sufficiently low *p*H but unfortunately was not well tolerated by many patients. In order to attain a satisfactory concentration of mandelic acid in the urine the fluid intake is usually restricted to about two pints in the day.

Ammonium mandelate has been found to have advantages over mandelic acid and sodium mandelate, the principal one being that ammonium mandelate only rarely causes gastric irritation. Mandelic acid treatment is not recommended in febrile cases nor will it act on the urea-splitting group of organisms.

The discussion, opened by Dr. Rosenheim, showed that the other speakers confirmed the opinion that while mandelic acid did not fulfil all the requirements of an ideal urinary antiseptic, in selected cases mandelic acid produces rapid and satisfactory results, the opinion expressed generally being that mandelic acid was most effective for *B. coli* infections of the urinary system and was not nearly so effective for streptococcal and other infections. Only one speaker referred to serious ill-effects on a patient from mandelic acid.

G. F. B.

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[**Anthrax in Swine.** VAN ES, L. (1937.) *J. Amer. Vet. Med. Ass.* **90.** 3. 331-340.]

The writer describes this condition as it occurs in the United States and in Germany. In the United States it is not uncommon and exists enzoötically in certain areas. There, the prevalence of the disease is mainly due to the practice of feeding carcases of cattle to swine. In Germany the feeding of imported raw material, including bone meal, from the Orient, constitutes the chief source of infection. Symptomatically three types are recognised: septicaemic, pharyngeal and intestinal. The latter type, however, is often not diagnosed and is the most serious of the three, both from the public health point of view and that of control. The anthrax bacilli may be eliminated in the faeces and later cause outbreaks of the disease in places where it was not known to exist previously.

The meat inspector at the abattoir is expected to be familiar with the lesions as they exist in the chronic form. These lesions are described in detail by the writer. Diagnosis is made from the symptoms and the demonstration of the causal organism, special attention being directed to the retro-pharyngeal and mesenteric lymph nodes. The bacilli may occasionally be few in number. Chains of extraordinary length are seen, also clumps, granules and empty capsules. Culture and animal inoculation may be necessary. The disease in its septicaemic form must be differentiated from swine erysipelas and hog cholera. As to treatment, anti-anthrax serum is indicated in the acute form of the disease. This may, however, be of no avail in the rapidly progressive form. Medicinal treatment has, except in some exceptional cases, proved useless.

Prophylaxis consists in the use of vaccine alone or a combination of vaccine and anti-anthrax serum. The feeding of carcases to swine should be discouraged, especially in areas where anthrax is known to exist in other animals. The writer indicates that although anthrax in swine in the United States gives no great cause for alarm from an economic point of view, its presence in these animals, owing to the existence of benign and chronic forms, presents great difficulties when control and public health measures have to be taken into consideration. The paper deals particularly with the comparative pathology of the disease, and the differences in the lesions seen in swine and those noted in the same condition in other animals receive special attention.

References are appended. P. F. M.

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[**A Contribution to the Study of the Pathology of Oesophagostomiasis in Sheep.** FOURIE, P. J. J. (1936.) *Onderstepoort J. Vet. Sci.* **7.** 1. 277-347.]

Fourie first gives a detailed account of observations made by him in the study of material collected by Veglia in 1923. This consisted of the formalin-preserved intestines of several lambs in which Veglia had produced a heavy infestation of *O. columbianum* (the "nodular worm"), the lambs having been killed at intervals after the time of infection, as follows: 12, 24 and 36 hours, and 2, 3, 4, 5, 6, 7, 8, 12, 15, 17, 18, 21, 22, 28, 30, 32, 40, 45, 56, 71 and 106 days. The haematological studies on which Fourie also reports were made on three other sheep which he experimentally infected for the purpose with large numbers of the worms.

The observations are discussed at length and led the author to the conclusion that, although

REVIEW

[**Milk Products.** By W. C. Harvey and H. Hill. Published by H. K. Lewis & Co., Ltd., London. Price 16s. net.]

In this volume, which may be regarded as a sequel to the authors' previous book entitled "Milk: Production and Control," a comprehensive account is given of the various milk products, such as ice cream, cream, butter and margarine, cheese, condensed milk, evaporated milk and dried milk, together with shorter accounts of various subsidiary milk products, such as fermented milks, junket, whey foods, infant and invalid foods, malted milk, lact-albumin, lactose, casein, milk chocolate and others. The chapters on the main milk products discuss their ingredients, methods of manufacture, bacteriological control, chemical examination and present legislative control. These problems are discussed mainly from the point of view of those interested in public health and consequently short accounts are given of the various outbreaks of disease in humans that have been proved to have followed upon the consumption of infected milk products, such as cream or ice cream. The manufacturing processes are described in reasonable detail, on the legitimate assumption that those interested in the quality and safety of a food product should know something of the method of manufacture. These sections are well illustrated by photographs of manufacturing plant and apparatus, and although explanatory diagrams are given in conjunction with many of these, the value of some of the others would be enhanced by a similar addition, thereby illustrating more clearly the way in which the plant works. Throughout the book reasonable space is given to a discussion of the food value of the different milk products. These discussions are good, but there is a tendency to over-emphasise the worth of the products; thus ice cream is an excellent food but it cannot truly be described as an "ideal food"; and again, the statement that "butter is virtually milk in one of its most palatable forms" is scarcely accurate. Butter is not milk: the conclusion that two food products containing the same constituents but in such widely different relative proportions are "virtually" the same is surely untenable. Reference is made to the various causes of spoilage of milk products sometimes arising from manufacturing processes or storage. These sections might usefully be extended, for occasionally the brevity of the reference may lead to erroneous deductions; thus on page 160 rancidity is attributed to the breakdown of fat into glycerine and fatty acids and no mention is made of the essential oxidation that produces the disagreeable rancidity. The authors have done well to insist that only good quality milk should be used for manufacturing purposes and that the commonly held view that "poor quality milk which cannot otherwise be utilised is suitable for manufacturing purposes" is a dangerous fallacy.

Altogether the book supplies a good, comprehensive discussion of the main products that are derived from milk, and it cannot fail to prove useful to all those interested in milk either from the point of view of nutrition or that of public health. It should have a strong appeal to our readers and is not dear at the price.

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the production of toxins could not actually be demonstrated, poisonous substances are probably formed by the worms and sometimes lead to the death of the sheep in the absence of bacterial or other complications.

Bacterial complications producing superficial or deep enteritis and peritonitis contribute to the production of disease and to the rate of mortality, but the nodules themselves, in the wall of the intestine, do not appear to bring about nutritional or other disturbances.

The haematological evidence which was obtained is regarded as insufficient to give definite information, but it is thought probable that the toxic action of the parasites produces a certain atrophy of the haemopoietic tissues, leading to an oligocythaemia, although the observed deficiency of red cells was not sufficient to constitute a clinical anaemia.

E. L. T.

NATIONAL HORSE ASSOCIATION

At a recent meeting, Major H. Faudel-Phillips (President of the National Horse Association), stated that he had noted with satisfaction that the user of the commercial horse in London and other large cities was well represented on the Council. In addition, they had some eminent veterinary surgeons associated, with transport, *viz.*, Mr. W. S. King, Mr. W. J. Hatton, Mr. W. Perryman, Mr. J. Willett and Mr. T. Eaton Jones, of Liverpool.

Despite this strong representation, he was very sorry to learn that only 60 firms using horse transport were members of the Association and he hoped that many more would join during his year of office. Having seen the excellent exhibits at the Van- and Cart-Horse Parades in Regent's Park, and at other parades and shows in the country, he felt there were many firms who took a keen interest in their commercial horses who ought to give their support to an Association which was endeavouring to safeguard their interests. He hoped that they would all communicate with the Secretary at 12, Hanover Square, London, W.1.

N.V.M.A. DIVISIONAL REPORTS

Midland Counties V.M.A.*

MEETINGS AT BIRMINGHAM

A meeting of the Midland Counties Veterinary Medical Association was held on Friday, November 27th, 1936, at the City of Birmingham Meat Market.

The President (Mr. W. F. Aston) was in the chair, and there were also present Messrs. H. W. Griffiths, W. Scott, B. DeVine, T. Marriott, J. Martin, senr., W. H. Brooke, J. W. Conchie, H. Yeomans, C. G. Allen, G. F. Banham, J. Robertson, senr., S. Jennings, H. W. Steele-Bodger, S. M. Woodward, L. W. Heelis, A. Platt, W. S. Davison, W. Trigger, J. B. Caffrey, T. N. Gold, E. O'Neill and the Hon. Secretary (Mr. H. W. Dawes). The visitors present included Messrs. J. M. Fandall, J. W. R. Pearce, J. T. Morton and V. E. Pratt.

The Hon. Secretary announced the receipt of a large number of letters of apology for inability to attend.

Nominations for Membership.—Mr. Banham nominated for membership of the Association Mr. J. T. Morton, of Stratford-on-Avon, and Mr. Conchie nominated Mr. John Currie, of Worcester.

These names will be submitted for election at the next meeting of the Association.

Elections.—The following members of the profession, duly nominated at the previous meeting of the Association, were now admitted to membership: Mr. F. H. Manley, M.R.C.V.S., M.V.Sc., Public Health Department, Stoke-on-Trent; and Captain A. D. M. Laing, M.R.C.V.S., of Stourbridge.

Resignations.—The Hon. Secretary announced the receipt of two letters of resignation, from Mr. Edwin Hall, of Wellington, Salop, and Mr. Durrant, veterinary officer at Leicester.

The meeting requested the Hon. Secretary to write these gentlemen, urging them to reconsider the matter—Mr. Hall, because he was one of the oldest members of the Association.

Animals and Gas Warfare.—Correspondence was read relating to the protection of animals in the case of an enemy air raid in which gas may be used.

One letter was from the Birmingham Branch of the British Medical Association, asking for the names and addresses of members of the Association, which the Hon. Secretary said he had supplied, adding that he had, in fact, forwarded the names and addresses of every veterinary surgeon in the area of the Division.

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In another letter on the same subject, from the Secretary of the N.V.M.A., it was stated that it had been agreed to act in co-operation with the British Medical Association in this matter. "One of the means suggested," wrote Mr. Knight, "by which the N.V.M.A. Divisional Secretaries could help was the furnishing of addresses of veterinary surgeons, but as this would have involved them in a considerable amount of work, I have thought it a good plan to get this information out in a form that would incidentally save the B.M.A. Branch Secretaries some trouble, namely, addressed labels."

The Hon. Secretary said he had fallen in with that suggestion also.

The President said he hoped the Association would endorse what the Hon. Secretary had done in that matter. Members would do well to embrace that opportunity of becoming acquainted with the facts relating to poison gas, not only for their own good in practice, but because such knowledge would enable them to afford relief to animals that might perchance suffer from a gas attack.

Annual Dinner and Meeting.—The Hon. Secretary presented the report of the Council, which met earlier in the day. It was recommended that the annual dinner be held early in February—on a Wednesday or Thursday, as the general meeting might decide. A Dinner Committee was appointed, consisting of the following: Messrs. DeVine, Woodward and Griffiths, together with the President and the Hon. Secretary.

It was further recommended that the Annual Meeting of the Association be held as soon after the dinner as possible.

The report was accepted.

Meat Inspection

Mr. C. G. Allen, of the City of Birmingham Veterinary Department, gave a practical demonstration of the duties of a meat inspector. In this he had at his disposal several carcases and offals which, for various reasons, had been recently condemned.

Mr. Allen said the inspector had the best chance of success if he had the good fortune to see the animal slaughtered. As this was not often possible, there must be some means of marking the carcase and the offal in order to ensure identification.

In the examination of the offal the lymph glands should be incised, particularly the bronchial, mediastinal, portal, mesenteric and pharyngeal. The lungs should also be palpated and any hard tissue cut into. If tuberculosis was found anywhere in the offal it was necessary to examine the carcase carefully. The safest way to do this was to have a certain

method and stick to it so as not to overlook any detail. Mr. Allen explained his own system by going over the carcase of a beast. He added that in deciding what ought to be condemned the Ministry of Health's Memorandum 62 (Foods) should be used as a guide. In that Memorandum would be found a list of conditions to be regarded as constituting generalised disease.

It was necessary, of course, to look for other things—such as oedema, emaciation and fevered flesh. The great test in such cases was the appearance of the flesh itself, and except in obvious cases he detained such carcases for a further 24 hours before giving a decision. It was remarkable how easily flesh could be tainted. Meat coming from abroad on a boat which was also carrying fruit could become tainted if the air currents passed from the hold containing the fruit into that containing meat. The meat might smell quite nice, but when it was cooked the taste was very unpleasant.

He then showed the carcase of a beast affected with jaundice and said it was necessary in such a case to condemn the whole carcase.

Another exhibit was the carcase and offal of a calf affected with tuberculosis. He supposed it was congenital, since the liver was so badly affected and the lesions in the carcase were so widespread.

Fortunately, said Mr. Allen, sheep gave very little trouble, but there were other conditions besides tuberculosis to look for. He showed several sheep carcases affected in various ways and explained how he conducted his examination.

In the case of pigs, the chief disease to examine for was tuberculosis. The most common place to find it was in the submaxillary lymph glands. Before an examination of the carcase was made it had to be split. In addition to the lymph glands the vertebrae must be carefully examined, also the ribs and sternum. Tuberculosis of the bone was found more frequently in pigs than in cattle.

It was very desirable, though unfortunately not always possible, to make an *ante-mortem* examination of the animals to be slaughtered; this was particularly helpful in cases of emergency slaughter.

Mr. Trigger moved a vote of thanks to Mr. Allen for his address. He said he had learnt much that was useful that afternoon, and he had no doubt others had done likewise.

Mr. Brooke, in seconding, observed that he had never seen meat inspection so thoroughly and so satisfactorily carried out as it had been that afternoon by Mr. Allen.

The vote of thanks was heartily carried, after which, under Mr. Allen's direction, the company made a tour of the markets.

Annual Meeting

The Annual Meeting of the Association was held at the Grand Hotel, Birmingham, on Friday, March 12th, 1937, when the retiring President (Mr. W. F. Aston) occupied the chair. There were also present Messrs. T. H. Hobson, R. H. H. Over, B. DeVine, A. Mackenzie, S. M. Woodward, A. A. Forsyth, F. Chambers, H. W. Griffiths, W. H. Brooke, S. Jennings, J. Martin, senr., W. Trigger, J. R. Barker, W. Scott, C. B. Fewings, T. Marriott, D. Howie, G. S. Muir, T. B. Yarrow, W. L. Dwerryhouse, O. V. Gunning and the Hon. Secretary (Mr. H. W. Dawes).

Nominations and Elections.—The minutes of the previous meeting having been read and confirmed, the President invited nominations for membership of the Association.

Mr. Trigger nominated Colonel Millard, of Woore; the Hon. Secretary, Mr. Howie, of Brierley Hill; Mr. Chambers, Mr. B. Davis, of Walsall; and Mr. Griffiths, Mr. Bridge, of Wolverhampton.

The following gentlemen, duly nominated at the previous meeting, were unanimously elected members of the Association: Mr. John Currie, of Worcester, and Mr. J. Morton, of Stratford-on-Avon.

Royal Sanitary Institute.—A letter was read from the Royal Sanitary Institute inviting the Association to send a delegate, as usual, to the Annual Congress, to be held at Birmingham from July 12th to 17th.

Mr. DeVine proposed that Mr. Brooke, who had served in that capacity before, be appointed delegate. This was seconded by the Hon. Secretary and carried.

Mr. Brooke said the state of his health made it uncertain whether he would be able to attend. The meeting thereupon decided that if he could not attend he should be allowed to nominate a deputy.

The Hon. Secretary observed that he would like to appeal to members, especially those in the Birmingham district, to make an effort to attend the Congress, if only to support Mr. Brennan DeVine, who would be in the presidential chair of the section devoted to Veterinary Hygiene. The agenda of that section would be found to contain subjects of interest and importance to practitioners, such as the Milk and Dairies Orders, and meat inspection.

Mr. Over inquired whether visitors would be welcome.

Mr. DeVine said he was not quite sure as to the rule on that point.

The Hon. Secretary promised to make inquiries and report to the next meeting of the Association, which would be in good time.

Treasurer's Report.—The Hon. Treasurer (Mr. W. H. Brooke) presented his annual financial statement. Members' subscriptions amounted to £60, and £3 10s. had been received as interest on £100 invested in Government stock. To these sums had to be added a credit balance brought forward from the previous year of £56 14s. 8d.

On the debit side were the usual secretarial expenses, printing and postages, together with subscriptions of £5 5s. to the Victoria Veterinary Benevolent Fund and £1 1s. to the National Horse Association, *plus* a special donation of £5 to the Victoria Veterinary Benevolent Fund. The balance carried forward was £58 2s. The accounts, he added, had been duly audited.

The President, in moving the adoption of the balance sheet, described it as satisfactory from every point of view. He embodied in his resolution authority for the Treasurer to renew the subscriptions and the donations mentioned in the accounts.

Election of Officers

The Hon. Secretary read a report of the meeting of the Council held earlier in the day, at which recommendations were made for filling the various offices of the Association during the ensuing year. These were as follows:—

President.—Mr. William Trigger.

Vice-Presidents.—The retiring President and Mr. T. H. Hobson.

Auditors.—Messrs. H. W. Griffiths and S. M. Woodward.

Hon. Treasurer.—Mr. W. H. Brooke.

Assistant Hon. Treasurer.—Mr. A. A. Forsyth.

Hon. Secretary.—Mr. H. W. Dawes.

Representatives on the Council of the N.V.M.A.—Messrs. B. DeVine, R. H. H. Over, H. W. Griffiths and the Hon. Secretary.

Council.—Messrs. J. R. Barker, A. Mackenzie, S. Jennings, T. Thompson, W. Scott, O. V. Gunning, R. H. H. Over, F. Chambers and B. DeVine.

Mr. Martin moved that the report be adopted and the recommendations agreed to, and this was duly seconded.

Mr. Hobson begged that his name as a Vice-President, which meant going into the chair next year, might be withdrawn. Unfortunately his health was poor, and it was impossible for him to undertake any fresh responsibility.

Mr. DeVine thereupon moved that Mr. Howard Dawes be elected a Vice-President, and this was accepted with acclamation.

Subject to this amendment, the recommendations of the Council in regard to the officers were agreed to.

Place of Next Meeting.—It was resolved, on the further recommendation of the Council, that the date and place of the next meeting of the Association be left to the convenience of the incoming President, in consultation with the Hon. Secretary, and that they be empowered to arrange the agenda.

Address.—Dr. G. Stanley White, of Messrs. Parke, Davis & Co., Ltd., then gave an address on "The Clinical Application of the Sex Hormones," illustrating the lecture by an admirable series of lantern slides. A discussion followed, in which several members took part, and at the conclusion of the meeting a very hearty vote of thanks was accorded Dr. White, together with good wishes for his forthcoming trip to America, and the members expressed the hope that Dr. White would again visit the Association shortly after his return.

H. W. Dawes, *Hon. Secretary.*

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North Midland V.M.A.*

General Meeting at Sheffield

A General Meeting of the above Division was held at Sheffield on March 23rd, 1937.

The President, Mr. D. D. Canning, of Doncaster, occupied the Chair and the following members were present: Messrs. F. H. Addison, E. F. Angler, T. Bowett, A. D. J. Brennan, T. C. Fletcher, G. Green, H. R. Laycock, E. Marrison, S. H. Nixon, H. M. Salusbury, S. E. Sampson, F. C. Scott, H. Thompson, and J. S. S. Woodrow.

Messrs. G. B. Edwards, W. W. Lang, P. J. McCann, K. J. MacKay, G. Rennie, W. Wardrop, E. T. A. White and W. R. Woodrow, were present as visitors.

Demonstration

The meeting started with a demonstration by Mr. W. W. Lang, of Brigg, Lincs., at Mr. Laycock's infirmary in Norfolk Street and the following is an account of the demonstration, kindly provided by Mr. Lang:—

Intravenous Injection and Stomach Tube

(1) The first subject was a mare, seven years old. She was stated to have been in excellent condition six to eight months previously but was now very thin and razor backed with pendulous abdomen and all ribs showing. In all probability this was a case of strongylosis.

She received one pint 5 per cent. each of salt and sodium citrate intravenously with a view to dissolving a probable thrombus in the ileo-caecal colic artery; and also for the purpose of demonstrating the technique of the use of the stomach tube—three-quarters of a pound common salt in four gallons of water.

(2) The second subject was an aged mare,

*Received for publication May 26th, 1937.

in rather low condition. She received one pound common salt in four gallons of water.

In this instance the tube entered the trachea, but there was no coughing. When the tube was withdrawn to the pharynx it was given a half twist to turn the point upwards until swallowed, when it was turned back again. This time the tube kinked, but the third attempt was successful.

This demonstration was valuable in that some of the pitfalls were shown. Attention was called to getting the tube into the oesophagus in two quick movements, the first ending with the mark just outside the nostril, the second push being sufficiently long to complete the passage.

Tea was now graciously provided by Mrs. Laycock and members adjourned to the King's Head Hotel.

Paper.—Mr. W. W. Lang now presented a paper, which had already been circulated, on "Everyday Practice—Some Aspects." [Mr. Lang's paper is published at the commencement of this issue.—*Editor.*]

A lively discussion followed, in which the majority of those present took part. Mr. Lang then replied to the discussion.

Business was then dealt with as follows:—

The minutes of the last meeting, as published in the *Veterinary Record*, were taken as read.

Correspondence.—(1) From Mr. A. Walker, of Retford, apologising for his inability to attend.

(2) The Secretary read the correspondence and gave a lengthy verbal report on the present position regarding the treatment of sick animals of the poor in Sheffield.

Obituary.—Suitable reference was made to the late Mr. W. Murgatroyd, for many years a member of the Division, who died on February 19th, 1937, and those present stood in silent tribute to his momory.

New Members.—Messrs. G. G. Rennie, Ministry of Agriculture and Fisheries, and A. J. McCann, of Barnsley, were elected members of the Division.

Votes of Thanks.—Hearty votes of thanks were accorded Mr. Lang for his demonstration and paper, Mr. Laycock for the use of his infirmary, Mrs. Laycock for tea, and the President, Mr. Canning, for his conduct in the Chair.

This concluded the meeting.

H. M. Salusbury, *Hon. Secretary.*

Erratum.—We regret that in the list of Colonial Veterinary Service Officers on leave, published on page 776 of our issue of June 19th, Mr. R. J. Roe was erroneously referred to as being stationed at British Honduras—this should read Cyprus.

Honouring our New Knights

Luncheon to Sir John Kelland and Sir Arthur Olver

Members of the profession from all parts of the country, representative of every sphere of veterinary activity, attended the luncheon at the Holborn Resturant, London, on Thursday, June 24th, to honour Sir John Kelland, M.R.C.V.S., and Colonel Sir Arthur Olver, C.B., C.M.G., F.R.C.V.S., upon whom knighthoods were conferred in the recent Coronation Honours. Unfortunately, Sir Arthur Olver was unable to attend, having left the week previously for India, where he is Government Adviser in Animal Health.

Mr. J. Willett, President of the Royal College of Veterinary Surgeons, presided at the luncheon and the company included Captain R. Simpson, President of the National Veterinary Medical Association, Sir John M'Fadyean, Professor J. B. Buxton, Dr. A. W. Whitehouse, Mr. W. Nairn, Mr. G. P. Male, Professor J. J. O'Connor, Sir Frederick Hobday, Dr. J. T. Share-Jones, Lieut.-Colonel P. J. Simpson, Mr. J. W. McIntosh, Mr. G. H. Locke, Mr. G. Livesey, Captain W. G. Wragg, Mr. D. A. E. Cabot, and Dr. W. H. Andrews.

The following letter, addressed to Sir John Kelland, was received from the Royal Society for the Prevention of Cruelty to Animals, who were holding a luncheon at the same time in the same restaurant: "I am requested by the Honorary Secretaries of the R.S.P.C.A. to convey to you their cordial congratulations on the honour which has been graciously conferred on you by His Majesty the King recently. The transmission of these good wishes gives me the greatest possible pleasure, as it affords an opportunity to thank you for the cordial relations that have existed between yourself, your department of the Ministry of Agriculture, and the R.S.P.C.A. You have been associated with the question of diseases of animals and the exportation of horses for a very long time, and the Society has had more than one occasion to be grateful to you for your constant courteous attention to any representations that have been made. With renewed good wishes, Robert Gower, Chairman, R.S.P.C.A. Council."

The toast of the guests of honour was proposed by Captain R. Simpson in the following terms:—

I should like to say at the outset how much I appreciate the privilege of being entrusted with the duty of proposing this toast.

I feel that it was a particularly happy thought, which really emanated from our friend Dr. Bullock, that the Council of the Royal College of Veterinary Surgeons and the National Veterinary Medical Association should combine to do

honour to two men, who are not only members of the "National" but distinguished graduates of the R.C.V.S. I am sure that you will share my regret that one of our guests, Sir Arthur Olver, has been unable to attend to-day owing to his having arranged to leave for India on June 17th, and the impossibility of arranging a date to suit his convenience. To many of us in the profession at home, the name of Sir Arthur Olver will be less familiar than that of our guest Sir John Kelland, but Sir Arthur has rendered distinguished service during his career in the Army, and more particularly in his present sphere as Adviser in Animal Health to the Government of India. That service has well merited the distinction of knighthood which has recently been conferred on him, and I am sure that it would be your wish that we should convey to him, through Dr. Bullock, our good wishes for the future in the important duties which he is discharging in India with great honour to our profession. (Cheers.)

When I speak of our guest, Sir John Kelland, I feel that I am on much more familiar ground, because it has been my privilege to know him for a great many years—more years, indeed, than I care to remind him of at this time. We are glad to see him here to-day, especially as I know he has recently been on sick leave.

Sir John Kelland has a long record of distinguished public service behind him. Graduating in 1901, he spent some time in South Africa before he entered the service in which he has passed through all grades, until now, he occupies the position of head of that Department. My first acquaintance with Sir John Kelland commenced after the Great War, when I joined the service of the Ministry of Agriculture, in which I remained for a short period. Having regard to possible developments, it almost appears likely that I shall see history repeating itself and find myself once more in the Service over which our guest presides.

My impression of Sir John in those early days when I was in the Ministry's service, was perhaps unfairly biased by the fact that somebody informed me that he was a strict disciplinarian who made heavy demands on his staff, but that impression was soon dispelled by personal contact, when I found him a human, approachable man, whose work was characterised by zeal and real ability animated by a profound desire to serve the best interests of his department and his profession.

I remember him in the days just before I left the Service, faced with an exceptionally serious outbreak of foot-and-mouth disease, which seemed to many of us, almost completely out of hand, calmly and deliberately pursuing the policy laid down by his Department in circumstances which might well have appalled even the most stout-hearted among us. These are the characteristics which have drawn him inevitably to his present position and which we hope will sustain him in the difficult times ahead of him. (Hear, hear.)

Since I left the Ministry's service, I have had the good fortune to maintain that friendly association which commenced many years ago. I have had the opportunity to co-operate with him in perhaps a small way, in dealing with other contagious diseases, and more especially, sheep scab. I remember him addressing a meeting of local authority representatives, and bluntly telling them that the continuation of this disease in Great Britain was a standing disgrace to the sheep industry. He did not hesitate to follow up these words by effective measures to deal with the disease, and to-day the position in regard to that disease was never in a more satisfactory state. In our conferences, we have sometimes disagreed about methods of procedure, when perhaps I have been somewhat impatient, but on fundamental issues affecting his administration and mine we have always found common grounds for agreement.

The initiation of measures to eradicate tuberculosis has also fallen to his lot and the recently amended Attested Herds Scheme is evidence of his policy to pursue the control of this disease and to give the general practitioner a full share in this work—a policy, incidentally, which has the full approval of the Association of which I have the honour to be President. Sir John has always struck me as being thorough and imbued with a desire to see things for himself.

It is common knowledge that the Government's agricultural policy, recently announced by the Minister of Agriculture, visualises a centralisation of the veterinary services of this country. If this policy receives the assent of Parliament, then whatever may have been Sir John Kelland's responsibilities in the past, these responsibilities will inevitably be enormously increased in the near future. And whatever may be our reaction to these new proposals, I feel sure that if they are carried into effect, Sir John will have the sympathetic support and co-operation of the profession as a whole. It would be improper for me to discuss these proposals on this occasion beyond saying this, that a great responsibility rests on the leaders of our profession as well as on Sir John, to ensure that the profession will rise equal to the task ahead and discharge whatever duties may be imposed upon it with the strictest integrity and efficiency, so that we may earn and deserve the trust of the agricultural industry and the general public of this country.

I congratulate our guest most heartily on the honour which His Majesty has conferred on him, an honour which his long and distinguished record of public service fully merits. It is an honour in which we can feel almost a personal share in that it indicates public recognition of a member of our own profession. (Cheers.)

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Sir John Kelland, who was acclaimed on rising to reply to the enthusiastically honoured toast, said he regretted the unavoidable absence of Sir Arthur Olver, which robbed them of the opportunity of making the function one unique in veterinary history. Sir John continued:

Looking back on my official career, extending over 36 years (the last 35 of which have been with the Ministry of Agriculture), I find that the profession has seen progress of which we may well be proud. At the beginning of that period, pleuro-pneumonia and rabies had just been eradicated, to the relief of all concerned. Rabies unfortunately was again introduced into this country towards the end of the War, but it was completely eradicated once more, and the country has now been free from the disease for 15 years. During that period, however, there have been imported into this country about a thousand canine and feline animals yearly, and no less than 13 dogs have gone down with rabies in our quarantine stations. Our freedom from this disease, in the circumstances, is a tribute to the efficiency of the measures in force.

Glanders and epizootic lymphangitis have also been eliminated, and sheep scab and parasitic mange in horses have been brought to comparatively small dimensions. I believe that the intensive work that has been done in connection with the former disease in the last two years will, if continued, result in its total eradication.

The most exacting work, however, during my official career has been in dealing with invasions of foot-and-mouth disease. This is accomplished under varying degrees of difficulty, at the cost of great effort generously and willingly given, and by the expenditure of considerable sums of public money. Circumstances beyond our control permit these invasions to take place, but the measures in force in Britain produce results which compare very favourably with those obtained in any other country. They are results of which we may be justly proud, and I should like to take this opportunity to pay a tribute to all ranks of the profession for the way in which they have co-operated with the Ministry staff. (Hear, hear.)

Another aspect of State veterinary work in which it has been my privilege to take part is that of framing the standard requirements for the fitting of vessels and railway and road vehicles for the transportation of livestock. The Orders governing this traffic are, we claim, second to none in the world, and the standards have been taken as a model for imitation by certain other countries. The number of animals carried under these controlled conditions amounts to nearly 1,750,000 yearly, and, during 1936, casualties amounted to not more than 16 per hundred thousand animals carried. That is a remarkable achievement, and reflects the greatest credit on all concerned.

In 1935, for the first time, we brought poultry within the purview of the Diseases of Animals Acts and Orders, and orders have now been issued to give effect to that arrangement. The first Order made fowl pest (Newcastle disease and fowl plague) a scheduled disease; the second provided control in respect to importations, and the third required the disinfection of markets and vehicles. Those steps I am convinced will result in nothing but good for the future. The poultry industry has opened up a new field of activity for the veterinary profession.

If we reflect upon the progress made during this generation, our satisfaction is somewhat tinged by regret at the deterioration which has taken place owing to the diseases of the more chronic type, which have continued their insidious infiltration into clean herds and districts. For some time the Government has been concerned at the serious toll which some diseases have imposed upon the livestock industry, and in a recent announcement the Minister has indicated that he will shortly propose measures of a far reaching nature in a sustained campaign for eradicating animal diseases. A substantial start has already been made with the amendments to the Attested Herds Scheme, which will enable farmers to proceed more rapidly with the eradication of tuberculosis. Further, the employment of practitioners in testing has now been introduced. Some practitioners have been slow to take advantage of this scheme. I now hope that all practitioners in agricultural districts will take an active part in the campaign against tuberculosis, not only in the interests of the herd owners but in the interests of the nation. For the first time, under this scheme, every veterinary practitioner in the country will be able to participate to the fullest extent. (Hear, hear). The proposals are an inauguration of a determined drive against a disease situation which by its nature will necessarily involve a long and arduous campaign. To this end the local and central services, where they operate under the Diseases of Animals code, will be unified for greater efficiency and uniformity.

A great responsibility is being imposed upon this Service, which will need considerable direct assistance from the practitioner, and I am confident that the profession will discharge the new responsibilities with as much credit as it has discharged those placed upon it hitherto. It is our duty, whether as practitioners or officials, to inculcate into the minds of farmers the correct outlook in matters relating to contagious diseases—that curative measures belong largely to the past and that preventive medicine is the method that brings profit. The health of the herd depends upon the health of each individual

(*Concluded at foot of col.* 1, *page* 844.)

In Parliament

STATE VETERINARY SERVICE FOR GREAT BRITAIN

Minister on his Settled Plan for Agriculture

In the House of Commons on Tuesday last, with the House in committee for the consideration of the money resolution authorising the new proposals in the Government's agricultural policy [the text of the financial resolution is given elsewhere in this issue] Mr. W. S. Morrison, the Minister of Agriculture, explained his proposals for improving fertility and production and checking disease in animals. Mr. Morrison described the scheme, the most comprehensive yet attempted in this country, for the eradication of disease in animals and poultry. There would be control of ports, a uniform high standard of preventive measures in all areas throughout the country, so that good work done in one quarter should not be undone by lesser vigilance in others, and a centralised State veterinary service.

The scheme was received favourably by the House.

The Minister said: I am moving this Resolution to prepare the way for a Bill to embody the proposals which I recently outlined to the House for increasing the fertility of the soil. The proposals are intended to serve two purposes. The first is to have regard to the object of putting the land into such a condition that if an emergency should occur the land will be able to play its part in a worthy manner to provide food for our own people. Secondly, it seeks to achieve this object in a manner consistent with and, indeed, advantageous to the normal development and practice of agriculture in time of peace. There has been expressed in some quarters a tendency to rush into a campaign of a war-time character, but this, obviously, does not come from the farmers. They are well aware of the harm that is done by sudden jolts and jerks in policy to an industry for which a continuous policy is a first essential.

The proposals set out in the Resolution, which are further described in the White Paper, deal with various subjects. The first paragraph deals with a proposal to give assistance in applying lime and basic slag to the soil. Since I announced these proposals I have received a great deal of comment and some criticism of them, but it is a remarkable fact that no farmers have ever doubted the wisdom of applying lime to the soil. It is a remarkable example of unanimity, and it is so clear that this will be of great benefit to the land that I need not stress the point. There is not only agreement that it will be beneficial, there is also agreement that the benefit is likely to be of an enduring character. For that reason I commend it heartily to the committee. Liming is a very old British practice. The committee will not expect me to enter upon the scientific basis of such a venerable practice. Suffice it to say that the scientist fully bears out the empirical knowledge of generations. It has been said, in the farmer's phrase, that lime sweetens the soil. Perhaps this is in simple language as apt a description of its functions as to say that it neutralises the soil acids, promotes a kindly medium for bacteriological activity, and restores to the soil the mineral constituents whose absence leads to feebleness and decay in plant life. Basic slag is, compared with the antiquity of lime, a newcomer. It is a by-product of the steel industry which is of recent growth in our country. It is also a basic substance and contains phosphoric acid. It is of great use in the improvement of pastures, and it is also long lasting in its effect.

The assistance to these two products is not an end in itself. It is to be given with the object of improving the cultivation of the soil, and particularly with the object of encouraging the improvement of grassland management. The impact of the agricultural crisis which was world-wide had two serious effects upon British agriculture. Not only did the low returns impoverish the industry, but, at the same time, the availability of copious supplies of very cheap imported feeding stuffs tended to make the agriculturists, short as they were of cash, rely upon feeding their animals on these imported stuffs rather than upon the produce of their own fields. This tendency was most noticeable among the specialist producers, and now, with the return of feeding stuffs to more normal price levels, they are feeling the impact of that situation. The return to normal prices of feeding stuffs is a sign of increased reward to primary producers, which is the aim and the policy of practically every Government in the world and is, indeed, the basis of real world prosperity. If this condition of dependency upon imported feeding stuffs were inevitable, there would be no more to be said. We should have to resign ourselves to dependence on the vagaries of the American climate, but I am by no means convinced that this dependence is inevitable.

I believe that we have in our own island a crop which we can raise better than anyone else in the world, and that crop is grass. Grass is really the foundation of our supremacy in the livestock industry, and its excellence as a crop is based upon the two permanent factors in all agricultural practice of soil and climate. I hope that we can develop this great resource to a degree that will decrease our dependence on imported feeding stuffs. We must come to regard grass as a crop, and not just as something to which you lay down land. The researches of the scientists have shown what can be done with grass, even on poor land, by extending the grazing season and thereby diminishing the expenditure upon bought feeding stuffs. The Government intend to combine this assistance to lime and slag with a policy of improving grassland management. I think that such a policy, if carried into effect, will do much to free us from

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in it, but the herd is more important than any individual.

In conclusion, I wish to express my deep gratitude to members and friends of the Royal College who have honoured me to-day; and may I say that I feel that I have been privileged to receive a distinction which is rather more than a personal matter, but a signal honour conferred upon the profession which touches upon private and public affairs at so many points. (Loud cheers.)

our present dependence upon uncontrollable circumstances, such as the climate in foreign countries. It will also achieve one of the major objects of these proposals; it will store up fertility in the soil and provide us with land which can yield food at once if called upon to do so.

The committee will, I apprehend, wish to be reassured on one point with regard to these proposals to assist the purchase of lime and slag, and the increased demand which will result. The question will naturally arise how that increased demand is to be prevented from manifesting itself in an increased price. In other words, what measures can be taken to prevent this subsidy from finding its way, in part, not to the land, but into the pockets of the manufacturers of lime and basic slag. This difficulty was foreseen, and, before any announcement of policy was made, I entered into negotiations of a confidential character with the suppliers of lime and slag. They differ from one another in the extent of their control of these two products. Slag is in relatively few hands, whereas lime is in many hands and in many more potential hands. The upshot is that the suppliers of slag have agreed not only not to increase the price of their product, but to reduce it from May 1st by 6d. per ton on low grade, 9d. on medium grade, and 1s. on high grade. I should like to express my appreciation to the producers of slag and the British iron and steel industry for the way in which they met me in these negotiations. With regard to lime, there are many derelict lime kilns which might start into life again. . . .

[The Minister dealt further with the price of basic slag and lime; then with the proposals to encourage the production of cereal crops, and improvement of land drainage.]

I now come to the last, but by no means the least, of these proposals, and that is the inauguration of an attack on disease in flocks and herds of animals and in poultry on a scale greater than we have ever before attempted in this country up to the present time. We propose to use for this purpose the machinery of the Diseases of Animals Acts. The two essential features of that machinery are these: In the first place, it involves control at the ports, recollecting that Great Britain is an island and must be protected from infection carried from foreign shores. The second feature which is peculiar to this machinery lies in the fact that it proceeds by the designation of areas in the country which are infected and by Orders controlling the movement of animals within these areas and out of them into other parts of the country. The sole criterion of an area which is the subject of an Order is whether it has disease in it or not, and no account is taken of county or other borders.

In this way various diseases have been tackled with success. Sheep-pox was stamped out in 1850, and it has not reappeared; cattle plague was controlled, and finally eradicated in 1877; pleuropneumonia in cattle, a very devastating disease, was finally eradicated in 1898; rabies was stamped out in 1902, though it reappeared again in 1918, because, it is believed, people brought over dogs in aeroplanes and thus evaded control at the ports. It took four years to suppress it then, but since 1922 it has disappeared. Among horses epizootic lymphangitis was imported into this country in 1905 and was eradicated in the following year; there was the last case of glanders in 1928; foot-and-mouth disease, anthrax, sheep scab, swine fever, and parasitic mange have all been kept under control. The feature of this machinery which has ensured its success is that it has been a Great Britain service, for disease knows no political frontiers.

The system has had success in the diseases which I have mentioned, which are all of a highly infectious character, but I regret to say that our position with regard to other infectious diseases of a more insidious spread, and to which other machinery has been applied, notably tuberculosis, has tended to deteriorate. This is due partly to the increased mobility of modern life. A greater number of animals has had to be transported from one part of the country to another, and there is development of dairying on the flying herd basis, where a man buys cattle which travel long distances and which come from a source of whose freedom from infection he is ignorant. The Gowland Hopkins Committee reported in 1934 and estimated that 58 per cent. of the dairy cattle leaving herds were disposed of on account of disease; that the average productive life of dairy cattle was under four and a half years, or half what it should be; that 40 per cent. of the cows were infected with tuberculosis in various degrees and that about the same proportion were affected with contagious abortion. The total burden of the diseases among all kinds of livestock has been estimated at about £14,000,000 a year.

It is clear that the eradication of disease, if we were only half successful, would be a most valuable service to agriculture. So far we have tackled it in two ways. There was the Tuberculosis Order of 1935 under the Diseases of Animals Acts. That is a Great Britain service and prescribes rules whereby cattle which are very badly infected with tuberculosis, so as to be visibly affected and dangerous, may be slaughtered and compensation paid; but that Tuberculosis Order does not touch cases which cannot be so described but are none the less reactors to the tuberculin test and may be conveyors of the disease. The second way in which we have tackled it has been by legislation directed to the purity of the milk supply as a public health service. This has been administered by local authorities in England and Scotland with varying results. It is now proposed to tackle this immense problem as what it is, namely, a problem of the diseases of animals, by the diseases of animals machinery, with a single island service of veterinary officers for the purpose. It is not a problem which farmers themselves can possibly solve. It is the result of many generations of neglect, and one generation of farmers cannot provide a cure for it. But farmers can, if this service is provided for them and they co-operate with it, rid themselves by degrees of this heavy burden and toll of disease.

Nor am I convinced that this problem will be solved under the present system, whereby local authorities, with their varying resources and standards, are grappling with it. I should like to pay a tribute to the wholly admirable manner in which some local authorities are discharging their responsibilities under existing legislation. It is worthy of great admiration, the work of these public-spirited men of all classes, who have given their services free and given their interest to this great work. It is not the men but the system which is at fault. To put the thing as shortly as I can, what is wrong is the varying standards of administration, very often due to varying rateable values and resources. As a result of that variation we find that good work which has been done in one county may be hampered and destroyed by less good work in an adjoining county, bearing in mind the greater mobility of cattle and the flying herds to

which I alluded a moment ago. The bacillus ignores county boundaries, and the division of areas by counties is not the same thing as the designation of areas on account of the amount of disease or absence of disease in them.

This variation has had a second bad result. It has led to complaints, which no one can deny are well founded, on the part of farmers that they have applied to them in some cases standards which are more rigorous than those demanded of their neighbours living in a different county, and this feeling of dissatisfaction tends to dishearten farmers from co-operating as we should like to see them do in this great battle against disease.

There is a second fault in the present system, which is that the powers of local authorities, regarding the matter as a milk problem, are inadequate for the purpose. Dealing with milk, as they do, they deal with cows, and this is a problem of the diseases of animals, whether they be male or female. What we propose is something bigger in scope than local authorities have ever tried to do before. It will have a beneficial effect on the milk side of the picture, because the surest way of getting tubercle-free milk is to get cows free from tubercle in the first instance. Healthy cattle are the logical foundation of pure, clean milk. The attack on tuberculosis has hitherto been carried out in detachments, with a local force sometimes getting out of touch with its neighbour and liable from that cause to encirclement by the enemy and to frustration. What is required is not so much a change in tactics as a more comprehensive strategy. These proposals in the White Paper seek to set on foot this more comprehensive strategy by the creation of a centralised veterinary service for the whole island to combat the diseases of animals and of poultry in all their manifestations.

This is largely a veterinary problem, and I am glad to say that veterinary opinion is in favour of it. The veterinary profession realise that the series of Diseases of Animals Acts provide the one way in which to tackle disease, and they realise, also, that in this way there is hope of real progress. Some apprehensions have been expressed, because we are setting up this State centralised service of veterinary officers, that in some way part-time practising veterinary surgeons will have their living interfered with, but there is no ground at all for that fear. Where veterinary surgeons are now employed on a part-time basis by local authorities it is certain that we shall have to employ them on the same basis to carry out tests and do other work similar to that which they are doing now. Indeed, it is true to say that by making the agricultural community more conscious of the importance of disease among livestock there is a greater prospect of these practitioners finding their services utilised. I hope to see from this a rise in the whole status of the veterinary profession in this country, and that will be of lasting benefit to agriculture and to the nation.

I have given an outline of the proposals for which I am asking the assent of the committee. They have suffered to some extent by the application to them of epithets of a magniloquent character, which are not mine, and which seem to claim too much for them. In particular, I have often seen them described as "the Government's long-term policy for agriculture," generally as a preface to some remarks of a derogatory nature. The assumption underlying the use of this term is that we thought that when this has been done nothing more will remain to be done; but that is not my view at all. The problems of agriculture are many and various. The maintenance of remunerative prices along with ample supplies to consumers is the object of Government policy. Certain aspects of the policy have been dealt with, others remain for completion, but, after all, the foundation of the whole structure is the fertility of the soil and the health of the stock upon it. These proposals for which I now ask assent are long-term proposals in the sense that if Parliament agrees to them we shall have done something of lasting benefit to an industry which is as vital to the welfare of the nation in peace as in war.

The Debate

Mr. T. Williams (Don Valley) said that the Opposition were wholeheartedly with the Minister in regard to the eradication of diseases, which was not only a step in the right direction but a step which ought to have been taken about 30 years ago. The Gowland Hopkins Report, which was published in 1934, explained that an appalling state of affairs existed in agriculture, in respect of disease in the cattle of this country. There were approximately 50 counties which had not one full-time veterinary surgeon. As most of the counties were dominated by farmers, on the farms and as county councillors, they were wholly responsible for the unfortunate state of affairs within the animal kingdom.

The report pointed out that 40 per cent. of our dairy cows were reactors, and that there were no signs of diminution. The life of a dairy cow was about four-and-a-half years when it very well might be eleven or twelve years, and that the annual loss due to the death of dairy cows sold for the meat market, lest they contracted tuberculosis in an acute form, when there would be a total loss, was round about £3,000,000. That was a "hefty" figure. If the first step that the Minister was taking would lead to the cleaning-up of the herds of this country—although it might take a long time, unless the Government's methods were much more vigorous than had been the case for many years—the saving to agriculture and to the health of the people, including the consumers of milk, would be enormous. Therefore, they welcomed the proposal of the right hon. Gentleman. They wanted to see in existence as soon as possible a national veterinary service with full power to act, so that no county which ignored its responsibilities would affect adjoining counties in which people were doing their best to clean-up their herds.

The same argument applied to poultry. He understood that the wastage of money in respect of poultry was enormous. If, instead of trying to restrict imports, the Government would try to get new strains of poultry and eradicate diseases, they might save for the poultry keepers infinitely more than they would give them by the increased prices of eggs brought about by the simple process of restricting the imports of eggs from foreign countries.

Mr. W. Roberts (Cumberland) said they all welcomed the proposals for disease control, but the Minister rather surprised him in his remarks about the reorganisation which was proposed with regard to the veterinary services of the country. There were at present several types of authority or organisation which might, in some cases, deal with this question. There were the counties, some of which had veterinary officers and some

had not; there were the farm institutes, which even though they had no veterinary officers did a considerable amount of research work, and took a very important part in propaganda for the general enlightenment of farmers on animal diseases; and, lastly, there was the Ministry itself. The local authorities had up to now had to carry out the administration of the Milk and Dairies Order. He did not fully understand from the Minister whether the administration of the Milk and Dairies Order under the 1922 Act was to be taken over from the local authorities and centralised under veterinary officers, who were to carry out the work on behalf of the Government direct.

The varying conditions to which the Minister referred could not, he thought, refer to anything else than the conditions with regard to cow byres under the Milk and Dairies Order. If he had understood him, he took it that it was the new services under this particular Resolution which were to be carried out by a staff of voluntary officers directly responsible to the Ministry. On the whole, they should welcome that, and they hoped that the new attested herd regulations would be more effective than the old ones. But in that connection he should like to ask a question. One noticed that Section 9 of the Act of 1934 was to be repealed, and he was wondering whether, under the new proposal, it would be possible to do something which he and many of those who knew the breeding districts of this country very much hoped would be possible. and that was to give encouragement in some form to those breeding farmers who did not in fact sell milk.

Under the attested herd scheme the main encouragement was the 1d. per gallon which the farmer might get on his milk, but there were many farmers in the high-lying districts who concentrated on breeding stock, and some encouragement should be given to them to clear their herds of tuberculosis. The farms of Ayrshire were most of them in the milk business, but the farms of Cumberland and of the West country and the Welsh counties were reservoirs of breeding stock, and there ought to be some means of encouraging the man who did not sell milk to clear his herd of tuberculosis, so that he might provide the dairyman with cattle free of tuberculosis. He hoped that under the new procedure it might be possible to give that encouragement. The Minister spoke with disapproval of the flying herd. Let him recommend for his encouragement the man who had had the same breeds of stock on his farm, sometimes for generations, not only of cattle but of farmers.

Another question to which the Minister referred called for attention. He said that under the Diseases of Animals Act no account was taken of county boundaries. That reminded him of the fact that his county was still greatly inconvenienced by the fact that county boundaries were taken into consideration in the administration of a large part of the work under the Diseases of Animals Act, namely, the work in connection with sheep scab. He believed the Ministry's veterinary officers and the county veterinary officers had established beyond doubt that the county boundary was not really the right boundary for dealing with sheep scab, and he hoped that under the new procedure the county boundary would not be taken into consideration.

Sir M. Barclay-Harvey (Kincardine and Western) said that he gave the proposals whole-hearted support. The feeling that the fertility of the land was going down had been causing many of them the greatest anxiety and the Minister was tackling this problem in the right way.

Mr. Price (Forest of Dean) said that he did not expect from the Government something that would remedy all the ills of agriculture in one measure or series of measures. But he felt that the policy that the Government had brought forward in this resolution was, like Joseph's coat, of many colours. It had in it several bright patches. The lime and basic slag programme was one that should command the support of the whole House and of all agriculturists in the country.

The application of these fertilisers to the land might also have important effects in the fight against animal diseases. It was evident from the "Georgics" that Virgil knew something about slagging 2,000 years ago when he wrote:—

Arida tantum
Ne saturare fimo pingui pudeat sola, neve
Effetos cinerem immundum iactare per agros

That meant, he believed,

Be not ashamed to feed the dried soil with rich dung or to scatter grimy ashes over the exhausted fields.

This seemed to indicate that slagging was known to the Romans of Virgil's day, and he congratulated the Minister of Agriculture on continuing that policy. (Laughter.)

Sir R. Dorman-Smith (Petersfield) stated that the Government's proposals would commend themselves to the House as a policy with a purpose—the health and the happiness of the land and those in the countryside.

Mr. Johnstone said that the Opposition would vote against the resolution, not because they did not wish to see a prosperous agriculture, but because the proposals of the Government would bolster up finance and capitalism in the industry. The subsidies would not go to improving the conditions of agricultural workers, but would find their way partly to private landlords and partly to the financiers and to the relief of middlemen's finances.

Mr. Wedderburn, Under-Secretary of State for Scotland (Renfrew, W.), replying to the debate, said it was certainly the Government's aim to increase the purchasing power of the people, and their general policy had had that effect. In the last four years 2,000,000 persons had found work who had not been in work at all. That meant an increase in the wages bill by several hundred million pounds. In the last two years a welcome rise in the level of wages had begun to take effect.

Mr. Price moved an amendment to leave out the part of the resolution referring to wheat, oats and barley.

The amendment was negatived by 206 votes to 121—Government majority, 85.

Mr. Henderson Stewart (Fife, E.) moved an amendment to provide, he said, that Scotland should retain the general autonomy in administration which under the Scottish Office she now enjoyed and to preserve the present high standard of the veterinary services in Scotland.

Mr. Wedderburn said there was no reason why the efficiency of the Scottish service should be effected by centralisation; in fact it would be more likely to be improved. The Minister of Agriculture would consider the appointment of a permanent officer in Edinburgh to keep in touch with Scottish conditions.

Mr. Henderson Stewart asked leave to withdraw the amendment. Leave, however, was refused by the Opposition, and the amendment was negatived by 210 votes to 111—Government majority, 99.

The resolution was agreed to, and the House resumed.

* * * * *

The following questions and answers have been recorded in the House of Commons recently:—

Agriculture (Veterinary Service)

Mr. Westwood asked the Secretary of State for Scotland (1) whether he is now in a position to inform the House of the proposals of the Government, in their application to Scotland, for the eradication of tuberculosis and other diseases from the dairy herds of Scotland;

(2) Whether he will publish as a White Paper the Government's draft proposals, submitted to Scottish local authorities, for transfer of veterinary services from local authorities in Scotland to a State service?

Mr. Elliot: The Government's proposals as a whole are now explained in the Memorandum on the Financial Resolution issued to-day to which I would refer the hon. Member. The proposals discussed with Scottish local authorities are incorporated therein.

Mr. Westwood: Am I to understand that the central body to deal with veterinary services will be located in Edinburgh, and not in London?

Mr. Elliot: I think the hon. Member will find full information in the Financial Resolution and in the Memorandum attached.

* * * * *

Exportation of Horses Bill

In the House of Lords, on June 22nd, Viscount Buckmaster moved the second reading of the Exportation of Horses Bill, which has passed the Commons. The Bill, he said, was designed to prevent the exportation from these shores of horses which, though technically sound, were yet past their best and were old or approaching old age.

It might fairly be said of these animals that their active working days were drawing to a close. There was nothing in the existing law to prevent their exportation. Animals of this type, after much faithful service on our behalf, could be sold for a paltry sum for export, either to be butchered on arrival abroad under conditions over which we had no control, or to have such scanty remaining strength as might be left to them ruthlessly exploited by those likely to show neither pity nor compassion. There was a substantial volume of public opinion behind the measure. It was not only in this country that the fate of the Bill was eagerly awaited; it had many supporters abroad.

The Earl of Haddington welcomed the Bill, which would tighten up the regulations.

The Earl of Feversham, Parliamentary Secretary to the Ministry of Agriculture, said that the Government were of the opinion that the Bill, in its present form, suitably rounded off the provisions of the existing law with regard to the export of horses and that it should be given a second reading.

The Bill was read a second time.

. . . . .

Cinematograph Films (Animals) Bill

A Standing Committee of the House of Commons, on Wednesday of last week, considered the Cinematograph Films (Animals) Bill, which prohibits the public exhibition of films in the production of which suffering is caused to animals or in which suffering to animals brought about by natural or artificial means is depicted. Sir Robert Gower moved an amendment which was carried, deleting reference to the producer in the Bill and substituting the exhibitor. He contended that it was not necessary to refer to the producer, because he was advised, and the Home Office held the view, that the existing protection of the Animals Act was sufficient to deal with any person who ill-treated an animal in the making of a film. Speaking on another amendment, which was also agreed to, Sir Robert Gower said that the Bill would only affect the public exhibition of such films. He said that very few films of the kind covered by the Bill were produced in this country. The Bill had the support of the film trade.

The committee stage was concluded.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

July 5th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

July 5th.—R.C.V.S. Written Examinations.

July 6th.—R.C.V.S. Written Examinations.

July 8th.—R.C.V.S. Oral Examination begins.

July 15th.—Summer and General Meetings of the Lancashire V.A., Division, N.V.M.A., at Chester, 12.15 p.m. and 1.45 p.m. respectively.

July 16th.—Summer meeting of the Eastern Counties V. M. A., Division, N.V.M.A., at Great Yarmouth, 2 p.m.

July 23rd.—Summer Meeting of the Royal Counties V.M.A., Division, N.V.M.A., at Abingdon, Berks., at 2.30 p.m.

July 26th-30th.—N.V.M.A. Congress at Bournemouth.

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PERSONAL

The Coronation Medal has been awarded to Captain R. Simpson, F.R.C.V.S., D.V.S.M., of Carlisle, as President of the National Veterinary Medical Association of Great Britain and Ireland.

. . . . .

Forthcoming Marriage.—The marriage arranged between Mr. John Pasfield, M.R.C.V.S., Beech House, Hersham, and Miss M. A. F. Patten, the Royal Veterinary College, London, will take place at 11 a.m. on Saturday, August 7th, in the parish church of West Worldham, Hants. The reception will be held at the Ambassadors Hotel, Upper Woburn Place.

. . . . .

Marriage.—Thomson—Hollander. The marriage took place on Saturday, June 19th, at St. Mary's Church, Stafford, between Mr. Alex.

Thomson, M.R.C.V.S., son of the late Mr. and Mrs. James Thomson, of Duvois, Aberdeen, and Miss Erica I. Hollander, M.R.C.V.S., only daughter of Mr. and Mrs. Cornelius Hollander, "Trefoil," Weeping Cross, Stafford. Both bride and bridegroom qualified at the University of Liverpool Veterinary School. Miss Hollander has been practising for the past two years in Stafford, and Mr. Thomson is on the staff of the Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent.

* * * * *

R.C.V.S. OBITUARY

MARTIN, Edric Sydney, Magnolia House, Christchurch, Hants. Major R.A.V.C. (T.A.). (Retd.). Graduated London, December 16th, 1905. Died June 25th, 1937; aged 55 years.

* * * * *

FOOT-AND-MOUTH DISEASE: BERWICKSHIRE OUTBREAK

The existence of foot-and-mouth disease was confirmed on Monday among cattle and pigs at Eyemouth, Ayton, Berwickshire. The area subject to restrictions in the movement of animals lies in the counties of Berwick, Haddington and Northumberland.

* * * * *

THE GREY SQUIRREL OUTLAWED

ORDER BY MINISTRY OF AGRICULTURE

An Order under the Destructive Imported Animals Act, 1932, has been made by the Minister of Agriculture and the Secretary of State for Scotland, acting jointly, known as the Grey Squirrels (Prohibition of Importation and Keeping) Order, 1937, applying the provisions of that Act to the grey squirrel. The Order, which has now been approved by both Houses of Parliament, will come into force on July 31st.

The Ministry of Agriculture, in a statement issued on Tuesday, say that the effect of the Order will be to place the grey squirrel in the same category as the musk rat so far as prohibition of importation and keeping is concerned. So far as is known the animal is not imported and kept for profit, but in reaching the decision to make the Order the Minister and the Secretary of State have been guided by the view that "keeping" connotes some deliberate act done by a person for the purpose of inducing grey squirrels to remain upon his land, whether in captivity or not, but the omission by a person to take steps to destroy grey squirrels which come upon his land does not by itself constitute "keeping."

The intention of the Order is to facilitate voluntary measures of control of the pest and it is unlikely that the power of entry on land which is conferred by the making of the Order will actually be exercised unless voluntary measures prove inadequate.

Practical and scientific opinions unite in condemning the grey squirrel as an increasing menace. It lives upon green shoots and buds, nuts and seeds, fruits, the inner bark of young trees, bulbs and roots, birds' eggs, and young birds. There are, therefore, few branches of agriculture which do not suffer from its depredations and few parts of the country in which it cannot find the food it requires. Although at the present time it is not found everywhere in Great Britain, it has already colonised a very large area. It is hoped that all those on whose land it is prevalent will be prepared to co-operate in a campaign to eliminate this pest.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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SMALL ANIMAL EUTHANASIA

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—I have read with great interest and satisfaction the report of the Special Committee on Small Animal Euthanasia, and I trust that their findings will be given wide publicity in the Press.

Owners are often most anxious to do their best for an animal, but are surprised and very doubtful to find the innocent-looking lethal chamber replaced by a hypodermic syringe.

The committee reported on methods suitable for use in premises built for the purpose where one or more reasonably capable assistants are available.

In private practice I find a nervous animal can be spared much anxiety if destroyed in its own home. Cats in particular detest travelling and are sometimes very wild after a car drive, a state made worse by the "hospital atmosphere" of a veterinary surgeon's premises.

During the past three years I have destroyed many such cases by the intrathoracic injection of nembutal, followed in five to ten minutes by Scheele's prussic acid. Single-handed, I consider the intraperitoneal route is difficult and the intravenous impossible, but I find I can do intrathoracic injections quite easily in most cases, using very little restraint and relying on speed and tactful handling.

Following the first injection the animal is left free, and generally goes to sleep quite naturally in its accustomed place. The whole process, including preparation of the solution and subsequent cleaning of the syringe, takes about 15 minutes.

I am extremely grateful to the committee for their lucid and valuable report, and trust it will lead to the speedy elimination of the methods they find objectionable.

Yours faithfully,

CONNIE M. FORD, M.R.C.V.S.

St. Margarets,
495, Footscray Road,
New Eltham, S.E.9.

June 22nd, 1937.

* * * * *

"THE SAFETY AND EFFICIENCY OF NEMBUTAL"

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—The article on "The Safety and Efficiency of Nembutal," by Mr. H. C. P. King, prompts me to write and endorse his remarks and findings; and there must be many other practitioners who agree with him. I am glad he did not allow Professor Boddie's statement to go unchallenged.

I have been using nembutal as an anaesthetic for both dogs and cats since its introduction by Professor Wright. I began by administering it either orally or intraperitoneally, with great safety and success. I now, of course, use the intravenous route in both dog and cat, following Professor Wright's methods and technique implicitly.

Correctly used, nembutal and the newer pentothal sodium are without question the best and safest anaesthetics for the dog and cat that have so far been introduced, and they have revolutionised anaesthesia and euthanasia among small animals, particularly cats. I cannot imagine anyone condemning the use of nembutal after once mastering the dosage and technique of administration.

The veterinary profession should be extremely grateful to Professor Wright, particularly for his pioneer work on anaesthesia in the smaller animals.

Yours faithfully,
J. D. Williams.

50, London Road,
Twickenham.
June 26th, 1937.

* * * * *

POST-WAR EQUESTRIAN MONUMENTS

To the Editor of the Veterinary Record

Sir,—In the *Daily Telegraph* of a few days ago, I read that the Countess Haig, widow of Field-Marshal Earl Haig, will signify her disapproval of the equestrian statue of her late husband to be erected in Whitehall by refusing to attend the unveiling ceremony. I will quote her words: "I shall not attend the unveiling because I am sure my husband would never have approved of the statue." Lady Haig said afterwards to the *Daily Telegraph* representative, "The horse is monstrous. My husband is pulling at the horse's head, a thing he never did in his life. He was a famous judge of horseflesh and one of the finest riders in the Army. I am sure I am acting as my husband would have wished." This brings back to my mind a translation which I made from an Italian veterinary journal, *La Clinica Veterinaria*. It was an article written by Professor Antonini, Professor of Anatomy at the Milan Veterinary College. The professor passed in review many equestrian post-War statues, making use in his essay of more than 3,000 words, but very few of them were in praise of the artists who depicted heroes mounted on horseback. The statue which comes in for most praise is that of Marshal Foch. This was the work of Giorgio Mallissari. The professor describes the horse as a real charger of Irish breed, very nearly thoroughbred, and admirably depicted in every detail. But, he says, the Marshal seems to be sitting too comfortably in his saddle, as though seated in an armchair, and the statue might have shown a little more animation.

The professor did not spare his fellow countrymen, and chastised them both severely and sarcastically. This came rather as a surprise to me, as I always thought that Italy was the veritable cradle of art—sculpture in particular. But I must hark back—"*revenons à nos moutons.*" Professor Antonini says that he knows nothing of the monument dedicated to Field-Marshal Haig, but leaves himself in the hands of Mr. Munnings. This gentleman is the famous painter, a specialist in the reproduction of animals, especially the horse. Mr. Munnings, after a minute analysis of the horse, affirms that Mr. Hardiman has made a "monstrous animal," at the same time asserting that the reproduction of the horse must have been taken from life; but he contends that he who undertakes this sort of work ought to have some scientific notion of the conformation of a horse, and should be a horseman himself before he can scientifically depict another horseman on horseback. It does indeed seem hard on the Countess Haig that after passing through a fiery ordeal at the hands of Mr. Lloyd George, she should now be requested to attend the unveiling of a statue depicting her gallant husband mounted on a "monstrous animal." I feel sure that all horse-loving and right-thinking people will admire her courage in refusing to attend the unveiling ceremony. Like Professor Antonini, we hope that in the not-far-distant future an artist may be brought to light who can create a statue which will depict a horse with a man on his back—as both horse and man should be depicted.*

Yours faithfully,
Philip Vincent.

55, Brunswick Place,
Hove.

[*The hopes of our correspondent already are fulfilled, in the person of Captain Adrian Jones, a veterinary surgeon long eminent as a sculptor, whose equestrian works are recognised the world over as masterpieces of art. The acquirement of one of these—the far-famed group *Duncan's Horses*—for the Royal Veterinary College was the subject of a letter of appeal published in our issue of June 19th.—*Editor.*]

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VETERINARY SURGEON *v.* "VET."

To the Editor of the Veterinary Record

Sir,—Last week I "listened-in" to a noble lord's observations from "north of the Tweed" on the health of his dairy herd and he brought into the picture his veterinary surgeon, pronouncing in a cultured and refined voice the word veter-in-ary as it should be pronounced. *Per contra*, an hour or so later the scene shifts to a fashionable polo club down south, where the announcer, in his ignorance, and with accent in keeping, said, "And now Mr. ———, 'vet.,' will tell us about accidents."

It occurred to me at the time what an opportunity this veterinary surgeon missed, firstly, of offering a gratuitous and much-needed correction to the announcer, and secondly, of at once educating thousands of listeners as to how to address members of the profession—by just beginning his remarks thus: "As a veterinary surgeon I find . . . ., etc."

On the face of these observations it would almost appear as if Scotland once again leads England in the way she should go.

Yours faithfully,
W. M. Scott.

Fryern Hall,
Bridgwater.
June 21st, 1937.

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R.C.V.S. COUNCIL ELECTION

To the Editor of the Veterinary Record

Sir,—Will you allow me to express my thanks to those members of the profession who were good enough to record their votes in my favour on the occasion of the last election to the Council of the Royal College of Veterinary Surgeons?

I need hardly assure them that my efforts in the future will, as in the past, be concentrated exclusively on the duties which fall upon members of this body.

I am, Sir,
Your obedient servant,
G. W. Dunkin.

National Institute for Medical Research,
Farm Laboratories,
Mill Hill, N.W.7.
June 28th, 1937.

CONTAGIOUS DISEASES OF THE PIG

BACTERIAL SWINE FEVER

Serum P.N.— Curative Serum
(Laigle Laboratory)

Affords immediate protection to animals actually affected. Immunity lasts from four to six weeks.

Ampoule of 10 c.cs. **1/-**

Susor — Preventive Vaccine
(Laigle Laboratory)

This vaccine is detoxicated and may be given to young pigs without fear of reactions. Immunity lasts from four to six months and becomes effective about one week after vaccination.

Ampoule of 10 c.cs. (5 to 10 doses) **2/-**

SWINE ERYSIPELAS

Anti-Erysipelas Serum
(Toulouse Laboratory)—

For curative treatment of affected animals.

Flask of 10 c.cs. **1/4**

Anti-Erysipelas Vaccine
(Pasteur Institute.) For prophylaxis.

Two tubes containing 10 doses of "First Vaccine" and 10 doses of "Second Vaccine," respectively. Immunity becomes established 10/15 days after the injection of the "Second Vaccine."

Two tubes containing 10 double doses **1/9**

The above products are supplied to Veterinary Surgeons only. Practitioners desiring further information are invited to write for descriptive leaflets giving the full technique of use, to:—

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NOTICES

ORIGINAL Articles are only accepted on the understanding that the "Veterinary Record" has priority of publication.

Reports of Clinical Cases

THE Editorial Committee of the N.V.M.A. will be glad to receive from practitioners reports of cases likely to prove of interest to readers of this journal.

Eastern Counties V.M.A.

(DIVISION, N.V.M.A.)

AT the invitation of Captain W. Shipley, the Summer Meeting of the Association will be held at "Beechcroft," 28, Southtown, Great Yarmouth, on Friday, July 16th, at 2 p.m.

The Business Meeting, which will include the Presidential address, will be held first, to be followed by the bowls tournament for the Shipley Cup.

Captain and Mrs. Shipley have also kindly invited members and their ladies to tea at about 4.30 p.m.

AGENDA FOR BUSINESS MEETING

Routine.
Election of new members.
Select place of next meeting.
Presidential address.
Any other business.

HARRY P. STANDLEY, *Hon. Secretary.*

Lancashire Veterinary Association

(DIVISION, N.V.M.A.)

A GENERAL MEETING of the above Association will be held at the Queen's Hotel, City Road, Chester, on Thursday, July 15th, 1937, at (approximately) 1.45 p.m.

The President, Mr. H. Sumner, M.R.C.V.S., will occupy the Chair.

AGENDA

Routine.
Any other business.

J. C. BAIRD, *Hon. Secretary.*

. . . . .

Annual Summer Meeting, 1937

THE Annual Summer Meeting of the Lancashire Veterinary Association will be held at Chester, on Thursday, July 15th, 1937, when it is hoped that there will be a large attendance of members and friends.

PROGRAMME

(1) Members and visitors are requested to meet at the Queen's Hotel, City Road, Chester, at 12.15 p.m.
(2) Luncheon (3s. 6d.) will be served at 12.45 p.m. *prompt* (free to members of the Association).
(3) Immediately after lunch a general meeting will be held.
(4) A surgical demonstration will take place at Woodhouse, the Duke of Westminster's Home Farm, Aldford, Nr. Chester, when Major F. Chambers, O.B.E., F.R.C.V.S., of Wolverhampton, will demonstrate the following operations:—
    (*a*) Castration of the cryptorchid.
    (*b*) Operation for roaring in a hunter.
    Operations will commence at 2.30 p.m. and members will proceed by road. Those having cars are asked to assist in conveying members without them to and from the Home Farm.
(5) The ladies after lunch are requested to meet at the Dee Steam and Motor Boat Company's landing stage, The Groves, Chester. They will proceed by motor launch, leaving at 2.15 p.m. to Eccleston Ferry (fare 1s.) and will be conducted through Eaton Park and Gardens. For information concerning the arrangements, ladies are referred to the Ladies' Committee (Mrs. H. Sumner and Mrs. F. G. Edwards). Return is by launch leaving Eccleston Ferry at 4.30 for tea.
(6) At the invitation of the President and Mrs. Sumner, tea will be served at the Queen's Hotel, at 5.30 p.m.

J. C. BAIRD, *Hon. Secretary.*

Royal Counties V.M.A.

(DIVISION, N.V.M.A.)

(*President*: COLONEL G. K. WALKER)

THE Summer Meeting of the Royal Counties Division will be held at Abingdon, Berks., on **Friday, July 23rd, 1937.** There will be a short business meeting at the Abbey House (by kind permission of the Mayor), commencing at 2.30 p.m. During the time of the meeting the ladies will be shown over the Guildhall and the Abbey gardens.

The President has arranged for a trip on the river. Tea will be provided for members and their ladies at Sandford Lock. Approximate time of leaving Abingdon, 3 p.m., arriving back at 6.30 p.m.

H. BELL, *Hon. Secretary.*

Society of Veterinary Practitioners

THE MR. STEELE-BODGER PRESENTATION FUND

A REMINDER to members wishing to subscribe to the above that the Fund will be closed on or about July 17th. The presentation will be made by Sir Frederick Hobday at a meeting of the Society to be held in Bournemouth during the Congress.

O. V. GUNNING,
Tutbury, *Hon. Treasurer of Fund.*
Burton-on-Trent.

Professional Advertisements

These will be received up to Wednesday morning. Five lines or under, 3/6; or two insertions 5/-; for three, 6/6. Each line above five—first insertion, 8d.; after first, 4d. Average—seven words in a line.

These Advertisements will not be inserted unless prepaid, and if replies are to be received at this office an extra shilling must be included. **Replies to Box Numbers should be addressed to the appropriate Box at the Office.**

Office Address:
36, GORDON SQUARE, LONDON, W.C.1.

APPOINTMENTS VACANT

APPLICANTS for posts are requested not to enclose original testimonials when replying to advertisements. Copies answer the same purpose and cause no inconvenience if mislaid.

PERMANENT Assistant for large mixed Practice, Yorkshire; motorist; excellent prospects and good salary to experienced gentleman.—Box 235.

APPOINTMENTS VACANT

Department of Agriculture
(IRISH FREE STATE)

THE Department of Agriculture invite applications from qualified veterinary surgeons for employment on a daily fee basis in connection with the examination of animals intended for export. Remuneration will be at a rate not exceeding £2 2s. 0d. per day of employment subject to a weekly maximum. Applications stating age, qualifications and experience should reach the Secretary, Department of Agriculture (Establishment Branch), Upper Merrion Street, Dublin, not later than July 7th, 1937.

LOCUM wanted for July; country Practice; apply with references.—Box 241.

WANTED, in July or August, recent graduate as Assistant in good mixed Practice; permanency to suitable man; good references essential.—Box 243.

WANTED, from about middle of July for a month, experienced Locum; country Practice; motorist; terms and references.—Box 244.

PRACTITIONER, retiring, requires Assistant with view to early succession in canine Practice returning over £2,000 a year; easy terms. Reply.—Box 245.

WANTED, Locum Tenens about July 22nd; mixed Practice; Midlands; apply, with references.—Box 246.

RECENT graduate wanted for country Practice, August 1st; live in. Fixed salary plus bonus on profits.—Box 247.

WANTED, Locum Tenens, experienced; mixed Practice, Midlands; about July 12th for two weeks; state terms (live in) and references.—Box 248.

WANTED, Locum for mixed Practice, West Midlands, from August 20th to September 5th.—Box 249.

WANTED, in Midlands (Assistant), as Locum for 14 days or more second week in July, for mixed Practice, chiefly canine.—Box 250.

WANTED in the near future, qualified male Assistant, mixed Practice; motorist; single; state terms.—Box 253.

APPOINTMENTS REQUIRED

VETERINARY Surgeon, experienced and reliable, undertakes locum tenens or management. Excellent references, experienced motorist. Long or short engagements. Reply, Benson, 161, Goldhurst Terrace, Hampstead, N.W.6. 'Phone: Maida Vale 1977.

M.R.C.V.S. is open to accept Locums and Assistantships; motorist; terms on application.—Box 252.

PRACTICES FOR SALE

OLD-ESTABLISHED Practice, market town in the North; high-class agricultural neighbourhood; excellent opportunity for young man on moderate and easy terms.—Box 232.

VETERINARY SURGEON'S old-established, high class Practice for sale; Goole and district, owing to death of practitioner.—For particulars apply, Messrs. Drury and Taylor, Solicitors, 9/11, North Street, Goole.

FOR SALE, mixed country Practice, South-West England. M. of A. and C.C. appointments; receipts about £1.500 p.a., capable of considerable expansion; Chartered Accountants' figures; no opposition; small house and excellent premises; long introduction given.—Box 251.

PRACTITIONERS wishing to dispose of their Practices or wanting partners are invited to apply to Peacock & Hadley, Ltd., Veterinary Transfer Agents, 67-68, Chandos Street, Bedford Street, Strand, W.C.2, who always have several would-be purchasers of practices or partnerships on their books. Locum Tenens and Assistants supplied at short notice.

SEVERAL Practices, large and small, at low premiums, excellent opportunities for veterinary surgeons wishing to get a Practice with scope.—Apply, Peacock and Hadley, Ltd., 67/68, Chandos Street, Strand, W.C.2.

PRACTICE REQUIRED

WANTED to purchase, small mixed (preferably cattle-canine) Practice in South of England. —Box 242.

PARTNERSHIP

SOUTHERN COUNTY, partnership available; preference to young Irish graduate with experience of equine practice and some capital. —Box 254.

MISCELLANEOUS

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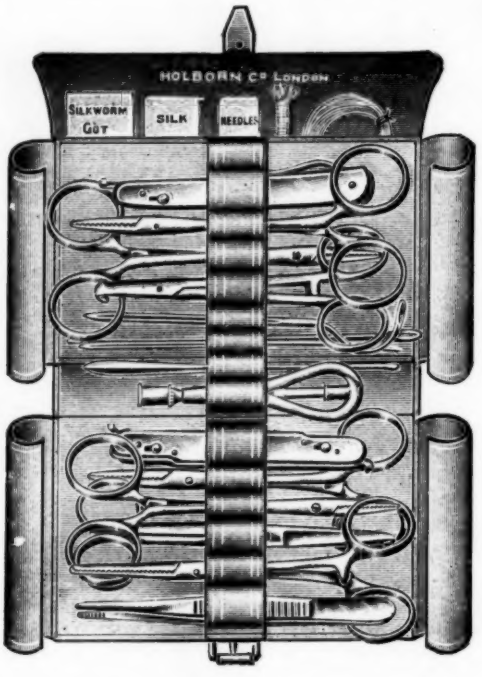

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